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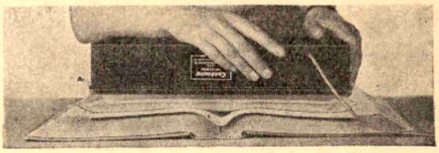

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ASLIB PROCEEDINGS

Volume 6 February 1954 Number 1

INTRODUCTION

IT is only two and a half years since the last revision of the Aslib membership list was published, but in the intervening period there has been such rapid growth and development that it seems desirable that a new list of members should be prepared. Advantage of the occasion has been taken, therefore, to circulate a questionnaire to all members and, on the basis of their replies, to give more details than was possible at the time of the 1951 list. Unfortunately, a number of members did not return the forms—we all know that everybody is overburdened with questionnaires nowadays—and in these instances the details had to be given from the data in the Aslib records. Every effort has been made to ensure accuracy and we hope that mistakes, if any, will be notified to the Aslib office so that the records may be altered accordingly.

In 1951 the membership numbered 1,120 ; in January, 1954, at the time of going to press, it had almost reached 1,600. At the end of December, 1953, the composition of the membership was as follows : industrial and commercial concerns, 461 ; Government departments and agencies, 186 ; public and national libraries, 187 ; universities and colleges, 150 ; other non-profit-making organizations, 226 ; individuals, 373. (British Government Departments are included, since, while they are not members of Aslib in the strict sense of the term, they receive all the privileges of membership under the conditions of the Government grant.) This is not the occasion on which to relate the history of Aslib's growth, but for those who are interested in such things, it is worth while to compare the above figures with the diagrams illustrating the growth and distribution of the Aslib membership 1925–45 printed in the *Report of Proceedings of the Twentieth Conference,* 1945.

Part I of the present list is a straightforward alphabetical list of names and addresses and of representatives in the case of corporate members. Part II is a *Classified index to corporate members*. The questionnaire asked members to indicate the headings under which they would prefer to appear, but it was found, in practice, that the sample headings given in the form could not cater for all the diverse interests represented. The classification has therefore been made by types rather than by subject, though, in the case of section 19, which includes a large proportion of the industrial and commercial concerns and the relevant research organizations, it was thought desirable to subdivide to some extent by subject. It should be emphasized, however, that the classified index is not intended as, and could not be in the space available, a directory to all the interests of the members. That function must be left to the *Aslib Directory.* The present classification cannot hope to be more than a rough guide on the lines of the classification given in the 1949 list. As such it must, inevitably, do less than justice to some of the larger concerns whose widespread activities cannot be summed up under a maximum of three headings.

The groups are arranged in order of the Universal Decimal Classification, but, for those who are unfamiliar with it, a subject index has also been provided in Part III.

E. M. R. DITMAS,
Editor.

PART I

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Vickers-Armstrongs, Ltd. *Aircraft Section,* Supermarine Works, Hursley Park, nr. Winchester, Hants. Tel: Chandlers Ford 2251. *Representative* Mr. C. F. Cayless, A.L.A. (Technical Librarian).

Vickers-Armstrongs, Ltd. *Central Technical Library,* Elswick Works, Newcastle-upon-Tyne, 4. Tel: P.B.E. 33101. *Representative* Ernest Westerby (Librarian).

Victoria Public Library, Swanston Street, Melbourne, C.1., Australia. *Representative:* C. A. McCallum, B.A. (Chief Librarian).

Victoria. State Electricity Commission, 22/32 William Street, Melbourne, C.1., Victoria, Australia. Tel: MY.240. *Representative:* Miss D. H. Garrett, B.A. (Chief Librarian).

Victoria. State Rivers & Water Supply Commission, 110 Exhibition Street, Melbourne, C.1, Victoria, Australia. *Representative:* L. Duggan (Secretary).

Vienna. Oesterreichische National-Bibliothek, Josefsplatz 1, Wien, 1, Austria. *Representative* The Librarian.

Vilela, Mr. Luis, V. P., Eng., Apartado 543, Lisbon– C, Portugal.

Vilentchuk, Mrs. Lydia, 71 Redington Road, London, N.W.3.

Vincent, Mrs. J. M., M.A., 21 Meadow Bank, Chorlton-cum-Hardy, Manchester, 21. Tel: Chorlton-cum-Hardy 6165.

Virginia University. *Department of Engineering.* Engineering Library, Thornton Hall, Charlottesville, Va., U.S.A. Tel. 2–2166, Ext. 3046. *Representative.* Miss N. Imogene Copps (Librarian).

Vitamins, Ltd. *Walton Oaks Experimental Station,* Dorking Road, Tadworth, Surrey Tel: Tadworth 3033, Ext. 1. *Representative.* Miss F. M. Hilton, B A.(London) (Information Officer).

Vitax, Ltd., Burscough Bridge, Ormskirk. Tel: Burscough 2171. *Representative:* E. B. Watson, B.Sc (Hort.) (Technical Adviser).

Vlaamse Vereniging van Bibliothecarissen, Blindestraat 19, Antwerpen, Belgium. *Representative:* V. van den Berghe (Secretary).

Wagner, H. & R., Northgate House, 20/24 Moorgate, London, E C.2. Tel: Monarch 9131. *Representative:* E. M. Wagner (Partner).

Wakefield, C. C., & Co., Ltd., 46 Grosvenor Street, London, W.1 Tel: Mayfair 9232. *Representative:* H. C. Claxton (Technical Records).

Wakefield Public Libraries, Drury Lane, Wakefield, Yorks. Tel: Wakefield 2733. *Representative* A. J. Griffiths, F.L.A. (Librarian).

Wales. National Library, Aberystwyth, Wales. *Representative* Librarian.

Wales. Gas Board, 2 Windsor Place, Cardiff. Tel: Cardiff 28621. *Representative·* C. B. Mawer (Secretary).

Walford, A. J., M.A., Ph.D., F.L.A., 32 Highfield Way, Rickmansworth, Herts. Tel: Rickmansworth 5432.

Wallasey Public Libraries, Earlston Road, Wallasey, Cheshire. Tel· Wallasey 334 and 9507. *Representative:* L. White, F L.A. (Chief Librarian).

Walter, Mr. Leo, 70 London Road, Cheltenham, Glos Tel. Cheltenham 52262.

Walterisation Co., Ltd. *Research & Development Department*, ‘The Knoll’, South Holmwood, Dorking, Surrey Tel Croydon 2791. *Representative.* R F Drysdale (Chief Chemist).

Wandsworth Public Libraries (Central Library), West Hill, London, S.W 18. Tel: Vandyke 1144. *Representative* E. V. Corbett, F.L.A. (Borough Librarian).

War Office Library, Whitehall, London, S W 1. Tel: Whitehall 9400, Ext. 15. *Representative:* A. S. White, I.S.O., M.M., F.R.Hist.S. (Librarian).

War Office. *Army Operational Research Group*, Broadoaks, West Byfleet, Surrey. Tel: Byfleet 3161 *Representative* Miss J. M. Lawson, B.A., F.L.A. (Librarian)

Warrington Public Libraries, Museum Street, Warrington, Lancs. Tel· Warrington 873. *Representative* G A. Carter, F L A. (Chief Librarian)

Washington. University Library. *Acquisitions Division*, Seattle 5, Washington, U.S A Tel· Melrose 0630 *Representative.* Harry C. Bauer, B.A., M.S , Bronze Star, Air Medal, Purple Heart (Director of Libraries).

Watford Technical College, Hempstead Road, Watford, Herts. Tel. Gadebrook 2831. *Representative* A G. Parker, A.L A., A.I.L. (Librarian)

Watkins, Miss K. E., B.Sc., F.L.A., Patent Office Library, 25 Southampton Buildings, London, W.C.2. Tel. Holborn 8721, Ext. 154.

Watts, Mr. C., B.Sc., The General Electric Co , Ltd , Brown's Lane, Allesley, Coventry. Tel Allesley 343.

Wauchop, Mr. William Simon, M.A., General Assembly Library, Parliament House, Wellington, New Zealand. Tel: 41 537

Wayne Kerr Laboratories, Ltd., Sycamore Grove, New Malden, Surrey. Tel: Malden 2202. *Representative* P. Calvert (Technical Director)

Webb, Mrs. C. A. Marian I., A.L.A., 36 Kidbrooke Gardens, Blackheath, London, S.E.3.

Wego Condenser Co., Ltd., Bideford Avenue, Perivale, Greenford, Middx Tel Perivale 4277. *Representative·* Dr. F. C. Stephan (Managing Director)

Weingott, Mrs. J. M., F.L.A., 19 Hartland Drive, Edgware, Middx

Weitlauf, Miss Frederica M., c/o Technical Library, Timken Roller Bearing Co , Canton 6, Ohio

Weller, Mr. O. G., B.Sc., A.R.C.S., D.I.C., A.R.I.C., A.M.I.Chem.E., A.M.Inst.F., Research Division, Uganda Development Corporation, P O Box 18, Entebbe, Uganda.

Wells, Mr. A. J., F.L.A., British National Bibliography, British Museum, London, W.C.1. Tel Langham 5846

West, A., & Partners, Ltd., 4 Abbey Orchard Street, London, S.W.1 Tel. Abbey 3323 *Representative* C. C Hanrott (Managing Director)

West African Cacao Research Institute, P.O. Box 8, Tafo, Gold Coast, West Africa. *Representative·* G H. Neal (Secretary).

West African Fisheries Research Institute, Freetown, Sierra Leone, West Africa. *Representative* J. C. D. Watts (Director).

West African Institute for Trypanosomiasis Research. *Library*, Kaduna, Northern Nigeria. Tel: Kaduna 229 *Representative* Mrs. A. S. M McKinnon (Librarian (temporary)).

West Ham Public Libraries. (Central Library), Water Lane, Stratford, London, E.15. Tel. Maryland 3434. *Representative* E. R. Gamester (Borough Librarian)

West Indies University College Library, Mona, St. Andrew, Jamaica, B.W.I. *Representative* H Holdsworth (Librarian)

West Point Manufacturing Co., *Research Division*, Shawmut, Alabama, U S A *Representative* Mrs Carolyn J Jones (Librarian).

West Riding County Library, County Library Headquarters, George Street, Wakefield, Yorks. Tel· Wakefield 2291/2 *Representative* B Oliph Smith, A L.A (County Librarian).

West Sussex County Library, County Hall, Chichester, Sussex Tel: Chichester 3001. *Representative·* H. K Gordon Bearman (County Librarian)

Westbrook Lanolin Co., Argonaut Works, Laisterdyke, Bradford Tel. Bradford 64346/7. *Representative* E. W. Clark, B Sc., A.R I.C , A.Inst.S.P. (Chief Research Chemist).

Western Australia Library Board, 547 Hay Street, Perth, Western Australia. *Representative* F. A Sharr (Executive Officer and Secretary).

Westminster Bank, Ltd., 41 Lothbury, London, E.C.2. Tel: Monarch 6060, Ext. 386. *Representative* W Davies, B.Com , A I B. (of the Economic Intelligence Department)

Westminster Public Libraries (Central Reference Library), St Martin's Street, London, W C 2. Tel: Whitehall 3274. *Representative.* Lionel R McColvin, C B.E , F.L.A. (City Librarian).

Westminster Technical College, Vincent Square, London, S.W.1. Tel: Victoria 4221 *Representative.* Gordon H. Wright, A L A. (Librarian).

Whale, Mr. D. R. C., A.L.A., Tube Investments, Ltd , Department of Development and Research, Plume Street, Aston, Birmingham, 6. Tel: Birmingham, East 0492.

Whatmore, Mr. Geoffrey, F.L.A., *Manchester Guardian*, Cross Street, Manchester Tel: Blackfriars 2345.

Whessoe, Ltd., Darlington Tel Darlington 5315. *Representative* Miss A. Cassels, B.Sc (Librarian).

Whiffen & Sons, Ltd., Aldersgate Chemical Works, Carnwath Road, Fulham, London, S.W 6 Tel Renown 3416. *Representative* R. S. Law

Whitrow, Mrs. A. M., B.A., A.L.A., 6 Albert Mansions, Albert Bridge Road, London, S.W.11. Tel. Battersea 0569.

Whitwell, Mr. T., F.I.A., F.S.S., F.I.S., F.R.A.S., 88 High Holborn, London, W C.1. Tel: Chancery 3311.

Wiener Library, 19 Manchester Square, London, W.1. Tel: Welbeck 4991. *Representative.* Dr. Alfred Wiener (Director).

Wigan Public Libraries (Central Library), Rodney Street, Wigan. Tel. Wigan 3287/8. *Representative·* H. H G Arthur, F.L.A., F.R.S.A. (Borough Librarian).

Wiggins Teape Group Research Organisation, Stoneywood Works, Bucksburn, Aberdeenshire. Tel· Bucksburn 42. *Representative* Miss C. P. McMillan, M A. (Librarian).

Wigmore, Miss Ethel G., Librarian, World Health Organization, Palais des Nations, Geneva, Switzerland.

Wilkinson, Miss O. M., ‘ Upwey ’, Highfield Avenue, Meir, Stoke-on-Trent

Willesden Public Libraries (Central Library). Willesden Green, London, N.W.10. Tel. Willesden 1010/1/2 *Representative.* J. T Gillett, F L A. (Borough Librarian)

Williamson, Mr. E., M.A., C.P.A., Grosvenor Gardens House, London, S W.1. Tel: Victoria 5618.

Willison, Mr. I. R., M.A., A.L.A., ‘ Rosemount ’, Widmer End, High Wycombe, Bucks.

Wills, W. D., & H. O., (Branch of the Imperial Tobacco Co. (of Great Britain and Ireland), Ltd), Bedminster, Bristol, 3. Tel: Bristol 64641, Ext. 132 *Representative·* Harold Overton, B Sc. (Technical Librarian)

Wilson, H. W., Co., 950–972 University Avenue, New York 52, U.S.A. *Representative* Miss E. M. Phelps (Secretary)

Wiltshire County Library, County Library Headquarters, Prospect Place, Trowbridge, Wilts. Tel. Trowbridge 3641, Ext 103. *Representative·* Frederick Hallworth, F.L A , F.R.G.S. (County Librarian)

Wimbledon Public Library, Hill Road, London, S W 19 Tel. Wimpole 7979 *Representative·* Miss Helen F. Bishop (Borough Librarian).

Winter, Professor Dr. Ing. Hermann, Braunschweig– Gliesmarode, Volkmaroder Str. 4, Germany.

Withers, John Charles, Ph.D., F.R.I.C., F.T.I., 11 Highfield Park, Heaton Mersey, Stockport, Cheshire. Tel. Heaton Moor 2149.

Wittenberg, Mr. G., A.M.I.Mech.E., 34 Barkston Gardens, London, S W 5. Tel: Frobisher 7153.

Witwatersrand University Library, Milner Park, Johannesburg, South Africa. Tel: 44–3781 *Representative* P. Freer, B.A.Hons (B'ham), F L A (Librarian).

Wolf Electric Tools, Ltd., Pioneer Works, Hangar Lane, Ealing, London, W 5 Tel: Perivale 5631/4, Perivale 6421/3 *Representative* L. Cox (Publicity Manager)

Wolseley Sheep Shearing Machine Co., Ltd., Wolseley Works, Electric Avenue, Witton, Birmingham, 6. Tel Birmingham, East 0435. *Representative* R S. Drake (Joint Managing Director).

Wolverhampton & Staffs Technical College, Wolverhampton, Staffs Tel: 24888. *Representative·* W. G Ainslie.

Women's Service Library, *see* **Fawcett Society.**

Woodall-Duckham Construction Co., Ltd., 63/77 Brompton Road, London, S.W.3 Tel Kensington 6355. *Representative.* Mrs. D. V. Ayres (Librarian)

Woodward, Mr. E. A., 9 Crowland Road, Sheffield, 5

Wool Industries Research Association, Torridon, Headingley, Leeds, 6 Tel: Leeds 51047. *Representative* Miss Margaret Horsman, B A (Librarian).

Woolwich Polytechnic, Woolwich, London, S E.18 Tel· Woolwich 2856. *Representative* Miss Betty Jones, M A.(Cantab) University of London Dip in Librarianship (Librarian)

Woolwich Public Libraries (Central Library), Woolwich, London, S.E.18. Tel Woolwich 4991. *Representative.* C. H. Turner, M A , F.R S A (Borough Librarian).

Worksop Public Library & Museum, Memorial Avenue, Worksop, Notts. *Representative·* Ian J Clark, F.L A. (Borough Librarian and Curator).

World Health Organization Library, Palais des Nations, Geneva, Switzerland *Representative:* H. A Izant (Chief, Library and Reference Section).

World Power Conference. *British National Committee,* 201/2 Grand Buildings, Trafalgar Square, London, W.C.2. Tel Whitehall 3966. *Representative* C H Gray, B A., Companion I E.E. (Secretary).

World Power Conference. *International Executive Council,* 201 Grand Buildings, Trafalgar Square, London, W C.2. Tel: Whitehall 3966. *Representative·* C. H Gray, B A., Companion I.E E. (Secretary)

Worshipful Company of Goldsmiths, Goldsmiths' Hall, Foster Lane, London, E.C.2. Tel: Monarch 1668 *Representative* W. A. Prideaux, M C. (Clerk of the Company).

Worters, Mr. Geo. C., BM/Birches, London, W.C 1.

Wright, Mr. W. G., 81 Clarence Street, Sydney, New South Wales, Australia.

Wyatt, Mr. F., 11 Hatherley Court, Hatherley Grove, London, W 2.

Wyeth, John, & Brothers, Ltd., Clifton House, Euston Road, London, N.W.1. Tel: Euston 5581 *Representative* Mrs K M. Bonneywell (Librarian)

Wykeham, C., & Co., Ltd., 17/19 Cockspur Street, Trafalgar Square, London, S.W 1. Tel· Whitehall 5307. *Representative.* C A. Carmichael (Director).

Yale University Library, 120 High Street, New Haven, Connecticut. Tel State 7–3131, Ext. 310. *Representative* James Tinkham Babb, M.A. (Librarian)

Yarsley, Dr. V. E., (Research Laboratories), Ltd., ‘ Oaklands ’, Clayton Road, Hook, Surrey. Tel· Emberbrook 4422. *Representative* J. A. Shelton (Librarian).

'Yorkshire Evening News', 13/18 Trinity Street, Leeds, 1 Tel: 27341. *Representative*· ALEC RUSSELL (Librarian).

Young, Mr. James David, B.Sc.(Econ.), Palace Lane Cottage, Beaulieu, Brockenhurst, Hants. Tel: Beaulieu 304.

Yugoslavia. Centar za Dokumentaciju, 16 Admirala Geprata, Beograd, Yugoslavia. *Representative.* DRAGO VUKŠA (Director).

Zagreb University. *Središnja medicinska knjižnica* (Central Medical Library), Šalata, Zagreb, Jugoslavia. Tel: 33–348. *Representative.* Mrs. NADA LAHMAN, Dip. Philosophical Faculty (Director).

Zentralstelle für wissenschaftliche Literatur, Berlin, N.W 7, Unter den Linden, 8, Deutschland. Tel: Berlin 20 01 11. *Representative*· Dr WILHELM GÓTZ (Direktor).

Zierow, Mr. Paul, Heidelberg, Ploek 107, Germany.

Zinc Development Association, Lincoln House, Turl Street, Oxford. Tel: Oxford 48088. *Representative.* Miss ANNE POTTER, M Sc. (Librarian).

PART II

CLASSIFIED INDEX TO CORPORATE MEMBERS

(in Universal Decimal Classification order)

1. DOCUMENTATION, LIBRARY AND BOOK ORGANIZATIONS (0)

American Documentation Institute
Battelle Memorial Institute Library
British Council, Books Department
Centro Italiano di Documentazione (CID)
Columbia University. Library Service Library
Commission générale d'organisation scientifique
Copenhagen. Danmarks Tekniske Bibliotek
Copenhagen. Kgl. Veterinaer-og Landbokøj Skoles Bibliotek
Deichmanske Bibliotek
Department of Scientific and Industrial Research
Egypt. Fouad I National Research Council
Florida State University. School of Library Training and Service
Forestry Commission Library and Documentation Centre
George Peabody College, Library School
INSDOC. (Indian National Scientific Documentation Centre)
Inter-University Council for Higher Education in the Colonies
Italy. Consiglio nazionale delle Ricerche
Lewis, H. K., & Co., Ltd.
Library Association
McGill University. Library School
Ministry of Supply. TPA3/Technical Information Bureau
Montevideo Universidad. Instituto de Cinematografía
National Book League
National Central Library
Nederlands Instituut voor Documentatie en Registratuur
Patent Office Library
Poland. Centralny Instytut Dokumentacji
Portugal. Instituto para a'alta Cultura
Science Museum Library
Scottish Central Library
Special Libraries Association
Unesco Library
Unesco. Centro de Cooperacion Cientifica para America Latina
Unesco. Middle East. Science Co-operation Office
University Microfilms Inc (Gt. Britain), Ltd.
Vlaamse Vereniging van Bibliothecarissen
Yugoslavia. Centar za Dokumentaciju
Zentralstelle für wissenschaftliche Literatur

2. NATIONAL LIBRARIES (02)

Australia. Commonwealth National Library
Belgium. Bibliothèque Royale
British Museum
British Museum (Natural History)
France. Bibliothèque Nationale.
India. National Library
Ireland. National Library
Israel. Jewish National and University Library
National Central Library
New South Wales. Public Library
New Zealand. National Library Service
Oslo. Universitetsbiblioteket
Oxford University. Bodleian Library
Patent Office Library
Poland. Biblioteka Narodowa
Raffles Museum and Library
Science Museum Library
Scottish Central Library
Tasmania State Library
Turkey. Milli Kütuphane (Turkish National Library)
Vienna. Oesterreichische National Bibliothek
Wales. National Library

3. PUBLIC AND COUNTY LIBRARIES (02)

Acton Public Libraries
Airdrie Public Library
Bath Public Libraries
Battersea Public Libraries
Belfast Public Libraries
Bermondsey Public Libraries
Bethnal Green Public Libraries
Birmingham Public Libraries
Blackpool Public Libraries
Bolton Public Libraries
Bournemouth Public Libraries
Brentford and Chiswick Public Libraries

Brierley Hill Public Libraries
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Burnley Public Libraries
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Norwich Public Libraries
Nottingham Public Libraries
Nottinghamshire County Library
Oldham Public Libraries
Oxford City Libraries
Paddington Public Library
Penge Public Library
Peterborough Public Library
Plymouth Public Libraries
Portsmouth Public Libraries
Rhondda Public Library
Rochdale Public Libraries, Art Gallery and Museum
Rotherham Public Library
Rugby Public Library
St Marylebone Public Library
St. Pancras Public Libraries
Salford Public Libraries
Sheffield City Libraries
Shoreditch Public Libraries
Smethwick Public Libraries
South Australia Public Library
South Shields Public Libraries
Southampton Public Libraries
Stafford Public Library
Stirling County Library
Stockport Public Libraries
Stoke Newington Public Libraries
Stoke-on-Trent Public Libraries
Surrey County Library
Sutton and Cheam Public Libraries
Sutton Coldfield Public Library
Swansea Public Library
Swindon Public Libraries
Toronto Public Libraries
Tottenham Public Libraries and Museum
Victoria Public Library

Wakefield Public Libraries
Wallasey Public Libraries
Wandsworth Public Libraries
Warrington Public Libraries
Western Australia Library Board
West Ham Public Libraries
West Riding County Library
West Sussex County Library
Westminster Public Libraries
Wigan Public Libraries
Willesden Public Libraries
Wiltshire County Library
Wimbledon Public Library
Woolwich Public Libraries
Worksop Public Library and Museum

4 UNIVERSITY AND COLLEGE LIBRARIES, INCLUDING POLYTECHNICS AND TECHNICAL SCHOOLS (02)

Aarhus Kommunes Biblioteker
Aberdeen University Library
Acton Technical College Library
Administrative Staff College
Admiralty. Royal Naval College
Admiralty, Royal Naval Engineering College
Agra University
Alabama Polytechnic Institute Library
Australian National University
Ballarat School of Mines and Industries
Barrett Street L C.C Technical College
Battersea Polytechnic Library
Bengal. College of Engineering and Technolcgy
Bergen. Norges Handelshöyskoles Bibliotek
Birmingham College of Commerce
Birmingham University Library
Bolton Technical College
Bombay University Library
Bristol University Library
British Columbia University
Brussels. Université Libre
Calcutta University Library
California University. Library
California University. Library Serials Department
Cambridge Philosophical Library
Cambridge University. Department of Applied Economics
Cambridge University. Engineering Laboratories
Cambridge University. Scott Polar Research Institute
Canberra University College
Canterbury University College Library
Cape Town University Libraries
Cardiff. University of South Wales and Monmouthshire
Case Institute of Technology
Chile. Universidad
College of Aeronautics
College of Estate Management
College of Industrial Management and Engineering
Columbia University
Copenhagen. Danmarks Tekniske Bibliotek
Copenhagen. Kgl. Veterinaer-og Landbohøj Skoles Bibliotek
Derby Technical College Library
Dublin University College Library
Duquesne University Library
Durham University, King's College Library
Edinburgh and East of Scotland College of Agriculture
Edinburgh. Educational Institute of Scotland
Edinburgh University Library
Exeter. University College of South West
Florida State University
George Peabody College, Library School
Georgia Institute of Technology Library
Glasgow and West of Scotland Commercial College
Glasgow. Royal Technical College
Glasgow University Library
Gold Coast University College
Hannover Technische Hochschule. Bibliothek
Hatfield Technical College
Hendon Technical College
Heriot-Watt College
Hong Kong University Library
Huddersfield Technical College
Hull University College
Ibadan University College
Illinois University Library
Immaculate Heart College Library
Imperial College of Tropical Agriculture
Indiana University Library
Inter-University Council for Higher Education in the Colonies
Iowa State University Libraries
Israel. Jewish National and University Library
Johns Hopkins University Library
Kent State University Library
Khartoum. University College
King's Fund. Hospital Administrative Staff College
Kumasi College of Technology
Leeds College of Commerce
Leeds University. Brotherton Library
Leicester College of Art and Technology
Leicester University College
Lincoln Technical College
London School of Printing and Graphic Arts Library
London University Library
London University. Bedford College Library
London University. Birkbeck College Library

London University. Institute of Cancer Research
London University. Institute of Historical Research
London University. Institute of Psychiatry
London University. London School of Economics and Political Science
London University. Postgraduate Medical School
London University. Queen Mary College Library
London University. Royal Free Hospital School of Medicine
London University. Royal Holloway College
London University. School of Oriental and African Studies Library
London University. School of Pharmacy
London University. University College London
London University. Westfield College
London University. Wye College
Loughborough College
McGill University Library School
Madras University College
Madrid University. Escuela Especial de Ingenieros Aeronauticos
Magee University College Library
Malaya University
Manchester College of Technology Library
Melbourne University
Michigan University. General Library
Minnesota University Library
Mississippi University
Montevideo Universidad
Natal University College Library
National College for Heating, Ventilating, Refrigeration and Fan Engineering
New England University College. Dixon Library
New York University. School of Commerce Library
Newcastle Technical College
North Staffordshire Technical College
North Staffordshire University College
North Wales University College
North-Western Polytechnic Library
Northern Polytechnic and National College of Rubber Technology Library
Northwestern University Library
Nottingham University Library
Ohio State University Library
Oregon University Library
Oslo. Universitetsbiblioteket
Oslo University. Faculty of Mathematics and Science
Otago University Library
Oxford University. Bodleian Library
Oxford University. Imperial Forestry Institute
Oxford University. Institute for Research in Engineering Economics
Oxford University. Nuffield College Library
Pennsylvania State College Library
Polish Library
Polytechnic, The
Poplar Technical College
Potchefstroom. University for C.H.E. Ferdinand Postma Library
Purdue University Library
Queen's University of Belfast
Rhodes University
Rice Institute Library
Roorkee University
Royal College of Nursing
Royal Military College of Science
Royal School of Mines
St. Andrews University Library
St. Andrews University. Dundee University College
St. Louis University Library
Seattle University Library
Sir John Cass College
South-West Essex Technical College and School of Art
Southampton University Library
Southern California University Library
Stockholm. Handelshögskolans Bibliotek. (School of Economics Library)
Stockholm. K. Tekniska Högskolans Bibliotek (Royal Institute of Technology)
Swansea University College
Sydney Technical College. Dept. of Technical Education
Tasmania University
Temple University Library
Texas University Library
Trondheim. Norges Tekniske Høgskole
Virginia University. Department of Engineering. Engineering Library
Washington University Library
Watford Technical College
West Indies University College Library
Westminster Technical College
Witwatersrand University Library
Wolverhampton and Staffs Technical College
Woolwich Polytechnic
Yale University Library
Zagreb. University. Središnja medicinska knjižnica (Central Medical Library)

5. NEWSPAPER LIBRARIES, NEWS SERVICES AND EDITORIAL DEPARTMENTS (07)

Associated Newspapers, Ltd.
Christian Science Monitor
Compass News Service, Ltd.
Daily Telegraph Information Bureau
Economist
Engineering, Ltd.

Financial Times
Glasgow Herald
Iliffe & Sons, Ltd.
News Chronicle
Paint Technology
Petroleum Press Service
Portugal. Instituto para a'alta Cultura
Reader's Digest
Reuters, Ltd.
Yorkshire Evening News

6. PSYCHOLOGICAL INSTITUTIONS (159)

Admiralty, Senior Psychologists Department
Institute of Psycho-Analysis
L.C.C. Education Library
London University Institute of Psychiatry
Ministry of Education
National Institute of Industrial Psychology
Tavistock Clinic and Tavistock Institute of Human Relations.

7. ORGANIZATIONS CONCERNED WITH STATISTICS (31)

Bank of London & South America, Ltd.
Central Office of Information. Government Social Survey Library
Norway Statisk Sentralbyras Bibliotek (Central Bureau of Statistics)
Royal Statistical Society
T.I. (Export), Ltd
World Power Conference (International Executive Council)

8 ORGANIZATIONS CONCERNED WITH INTERNATIONAL RELATIONS (32)

American Library
British Council. Rome Representative
Caribbean Commission
English-Speaking Union
Foreign Office Library
Germany. Consulate-General of the Federal Republic
Hispanic & Luzo-Brazilian Councils, Canning House Library
Hungary. Ministry for Foreign Affairs
India. Office of the High Commissioner
International African Institute
Keesing's Publications, Ltd.
Royal Institution of International Affairs
Society for Cultural Relations with the U.S.S.R.
United Nations Library
Unesco Library
Unesco. Middle East Science Co-operation Office
Wiener Library
World Power Conference (British National Committee)
World Power Conference (International Executive Council)

9. ORGANIZATIONS CONCERNED WITH ECONOMICS AND SOCIOLOGY (33)

Cambridge University. Department of Applied Economics
Carnegie U.K. Trust
Fawcett Society
Horace Plunkett Foundation
Institute of Personnel Management
International Labour Office
London University. London School of Economics and Political Science
Ministry of Labour and National Service. Factory Dept.
National Institute of Economics and Social Research
Norway. Statisk Sentralbyras Bibliotek (Central Bureau of Statistics)
Stockholm. Handelshögskolans Bibliotek (School of Economics Library)

10. BANKING AND FINANCIAL ORGANIZATIONS (332)

Bank of London & South America, Ltd.
Bank of New South Wales
Commonwealth Bank of Australia
Financial Times
Institute of Bankers
Institute of Chartered Accountants in England and Wales
National Provincial Bank, Ltd.
Royal Bank of Canada
Swiss Bank Corporation
Wagner, H. & R.
Westminster Bank, Ltd.

11. GOVERNMENT DEPARTMENTS, INCLUDING LOCAL GOVERNMENT (35)

(*See also* sections 8, 12 and 13)

Australia. Department of National Development
Board of Inland Revenue
Board of Trade
British Transport Commission
Central African Archives
Central Office of Information
Central Office of Information Government Social Survey Library
Central Public Health Laboratory
Colonial Office Library
Commonwealth Relations Office
Crown Agents for the Colonies
Department of Agriculture for Scotland
Department of Scientific and Industrial Research
D.S I R. Scottish Office
Department of the Government Chemist
France. Ministère de l'Education Nationale
H.M. Customs and Excise
H M. Stationery Office
H M. Treasury Library
Home Office
Home Office National Police College
House of Commons Library
India Ministry of Education
India Geological Survey
India Office Library
Institute of Public Administration
Italy. Alto Commissariato per l'Igiene e la Sanita' Pubblica
Kenya Public Works Department
King Edward's Hospital Fund for London
King's Fund. Hospital Administrative Staff College
L C.C Member's Library
Metropolitan Police
Ministry of Agriculture and Fisheries
Ministry of Education
Ministry of Food
Ministry of Fuel and Power
Ministry of Fuel and Power. Safety in Mines Research Establishment
Ministry of Health
Ministry of Housing and Local Government
Ministry of Pensions and National Insurance
Ministry of Supply
Ministry of Transport and Civil Aviation
Ministry of Works
National Assistance Board
National Development Foundation of South Africa
New Zealand. Dept. of Industries and Commerce
Nigeria Dept of Commerce and Industries
Northern Ireland Ministry of Commerce
Ordnance Survey Department
Patent Office Library
Royal Empire Society Library
Royal Military College of Science
St. Andrews House Library
Scottish Home Department
Scottish Home Department. Marine Laboratory
South Africa. Department of Agriculture
South Africa Library of Parliament
South Pacific Commission
Sudan Ministry of Agriculture
U.S. Department of State

12. PUBLIC SERVICES (35)

(*See also* section 24)

Melbourne and Metropolitan Board of Works

Atomic Energy

Department of Atomic Energy. Atomic Weapons Research Establishment
Department of Atomic Energy. Industrial Group H.Q.
Department of Atomic Energy. Industrial Group

Coal

National Coal Board

Electricity

British Electricity Authority
British Electricity Authority South-Eastern Division
New South Wales. Electricity Commission
North-Western Electricity Board
Snowy Mountains Hydro-Electric Authority
Victoria State Electricity Commission

Fire prevention

D.S.I R Fire Officers Committee
Fire Protection Association

Gas

North Thames Gas Board
North-Western Gas Board, Liverpool Group
Wales Gas Board

Post Office and Broadcasting

British Broadcasting Corporation
New Zealand General Post Office
Post Office

Water Supplies

Central Water and Power Commission
D.S.I R. Water Pollution Research Laboratory
Sydney. Metropolitan Water Sewerage and Drainage Board

13. ARMED SERVICES (355)

- Admiralty. A.C.S.I.L. Library
- Admiralty. Boom Defence and Marine Salvage Department
- Admiralty. Engineer-in-Chief's Department
- Admiralty. Naval Construction Department
- Admiralty. Naval Ordnance Department
- Admiralty. Royal Naval College
- Admiralty. Royal Naval Engineering College
- Admiralty. Royal Naval Torpedo Factory
- Admiralty. Senior Psychologist's Department.
- Admiralty. Signal and Radar Establishment
- Air Ministry Library
- Air Ministry. Meteorological Office
- Belgium. Ministère de la Defense Nationale
- Canada. Defence Research Board
- Home Office. Civil Defence Staff College
- Imperial War Museum
- Institution of Naval Engineers
- Institution of Royal Engineers
- Ministry of Defence
- Ministry of Supply. Armament Research Establishment
- Ministry of Supply. C.D.E.E.
- Ministry of Supply. Directorate of Guided Weapons Research and Development
- Ministry of Supply. Explosives Research and Development Establishment
- Royal Army Medical College
- Royal Arsenal
- Royal Ordnance Factory
- U.S. Air Force. Headquarters Third Air Force
- U.S. Army Medical Library
- U.S. National War College
- U.S. Navy. Office of the Assistant Naval Attaché for Research
- War Office Library
- War Office. Army Operational Research Group

14. MEDICAL, OPTICAL AND HOSPITAL ORGANIZATIONS (36 and 61)

(*See also* section 19—Pharmacy)

- British Council, Medical Library
- British Medical Association
- British Optical Association
- Central Council for Health Education
- Central Public Health Laboratory
- Ceylon. Medical Research Institute
- Edinburgh University Union
- Göteborg. Medicinska hogskolans bibliotek
- Interafrican Bureau of Epizootic Diseases
- Italy. Alto Commissariato per l'Igiene e la Sanita' Pubblica
- King Edward's Hospital Fund for London
- London University. Institute of Cancer Research
- London University. Postgraduate Medical School
- London University. Royal Free Hospital School of Medicine
- Ministry of Health. National Blood Transfusion Service Laboratories
- National Institute for the Deaf
- Queensland Institute of Medical Research
- Royal Army Medical College
- Royal College of Nursing
- Royal College of Physicians
- Royal College of Surgeons of England
- Royal College of Veterinary Surgeons
- St. Andrews House Library
- St. John and Red Cross, Hospital Library Department
- St. Thomas's Hospital Medical School Library
- South African Institute for Medical Research
- U.S. Army Medical Library
- World Health Organisation Library
- Zagreb University. Središnja Medicinska Knjižnica (Central Medical Library)

15. ORGANIZATIONS CONCERNED WITH WELFARE AND INSURANCE (36)

- Industrial Welfare Society
- Ministry of Labour and National Service
- National Institute for the Deaf
- Royal Society for the Prevention of Accidents
- St. Andrews House Library
- Slough Social Fund, Ltd.
- Universities Federation for Animal Welfare

Insurance

- Chartered Insurance Institute
- Ministry of Pensions and National Insurance
- South African Mutual Life Assurance Society

16. EDUCATIONAL ORGANIZATIONS (37)

(*See also* section 4)

Australia. Commonwealth Office of Education
Edinburgh. Educational Institute of Scotland
France. Ministère de l'Education Nationale
India. Ministry of Education
L.C.C. Education Library
Ministry of Education
National Union of Teachers
St. Andrews House Library

17. LEARNED SOCIETIES AND RESEARCH INSTITUTIONS (5)

(For Industrial Research Associations, *see* section 19)

Admiralty. A.C.S.I.L. Library
Admiralty. Royal Naval Torpedo Factory
Air Ministry. Meteorelogical Office
Amsterdam. Nationaal Luchtvaartlaboratorium
Argentina. Comision Nacional de la Energia Atomica
Australia. Commonwealth Scientific and Industrial Research Organization
Australia. C.S.I.R.O., National Standards/Radiophysics Laboratories
Battelle Memorial Institute Library
British Council, Science Library
British Electrical and Allied Industries Research Association
Brookhaven National Laboratory
California University. Radiation Laboratory Library
Cambridge University. Scott Polar Research Institute
Canada. National Research Council Library
Centrale Organisatie T.N O.
Ceylon. Industrial Research Laboratory
Chalmers Tekniska Högskolas Bibliotek
Chemical Society
Department of Atomic Energy. Atomic Energy Research Establishment
Department of Atomic Energy. Industrial Group
Department of Atomic Energy. Industrial Group H.Q.
Department of Scientific and Industrial Research H.Q.
D.S.I.R. Chemical Research Laboratory
D.S.I.R. National Physical Laboratory
D.S.I R. Scottish Office
Department of the Government Chemist
Egypt. Fouad I National Research Council
Finland. State Institute for Technical Research
Fulmer Research Institute, Ltd.
Gmelin—Institut für anorganische Chemie und Grenzgebiete in der Max-Planck-Gesellschaft
Hannah Dairy Research Institute
I.C.I., Ltd. Butterwick Research Laboratories
India. Geological Survey
India. National Chemical Laboratory
Indian Institute of Science
Institute of Physics
International African Institute
Israel Research Council
Italy. Consiglio Nazionale delle Ricerche
London University. Institute of Cancer Research
Medical Research Council. Toxicology Unit
Melbourne University. Department of History and Methods of Science
Ministry of Supply. Radar Research Establishment
National Institute of Oceanography
Nature Conservancy
New Zealand. Department of Scientific and Industrial Research
Northern Ireland. Ministry of Commerce
Northern Polytechnic and National College of Rubber Technology Library
Norway. Forsvarets Forskningsinstitutt
Nuffield Research Fellows Office
Oslo University. Faculty of Mathematics and Science
Panstwowy Instytut Biologiczno Doswiaczalny
Portugal. Instituto para a 'alta Cultura
Royal Astronomical Society
Royal Dublin Society
Royal Greenwich Observatory
Royal Institution of Great Britain
Royal Meteorological Society
Royal Society
Scottish Home Department. Marine Laboratory
Scottish Marine Biological Association
Services Electronics Research Laboratory
Society of Antiquaries of London
South Africa. Council for Scientific and Industrial Research
Southwest Research Institute
T.M.M. (Research), Ltd.
U.S. National Science Foundation
War Office. Army Operational Research Group
West African Institute for Trypanosomiasis Research

18. PROFESSIONAL SERVICES (6)

Brisch, E. G., & Partners, Ltd.
British Colour Council
Fulmer Research Institute, Ltd.
Lewi, George, & Partners
Mactaggart & Evans, Ltd.
Production Engineering, Ltd.
Urwick, Orr & Partners, Ltd.
Yarsley, Dr. V. E. (Research Laboratories), Ltd.

Patent Agents

Dehn, Frank, B. & Co.
Forrester, Ketley, & Co.
Gill, Jennings & Every
Marks & Clerk
Page, White & Farrer
Reddie & Grose, Chartered Patent Agents

19. ORGANIZATIONS CONCERNED WITH APPLIED SCIENCE AND TECHNOLOGY (6)

(*a*) MANUFACTURERS (WHERE NOT INCLUDED UNDER A MORE SPECIFIC HEADING)

Air Control Installations, Ltd.
Air Trainers, Ltd.
Edgar Allen & Co., Ltd.
Berry Wiggins & Co., Ltd.
Bibby, J., & Sons, Ltd.
Birlec, Ltd.
Bofors Aktiebolaget
British Boot, Shoe and Allied Trades Research Association
British Ratin Co., Ltd.
Bruntons (Musselburgh), Ltd.
Cosmic Crayon Co., Ltd.
Furniture Development Council
Hall's Barton Ropery Co., Ltd.
Hamilton, John M., & Co., Ltd.
Hodgson, R., & Sons, Ltd.
Hoover, Ltd.
I.C.I., Ltd., Leathercloth Division
Manchester Tinning Co., Ltd.
Marks & Spencer, Ltd.
Mason, E. N., & Sons, Ltd.
Minnesota Mining & Manufacturing Co., Ltd.
Mitchell, James, & Son (Greenock), Ltd.
Morgan Crucible Co., Ltd.
Pyrene Co., Ltd.
Remploy, Ltd.
Stanton Ironworks Co., Ltd.
Steinway & Sons
Storeys of Lancaster
Unilever, Ltd.
United Shoe Machinery Corp.
Vere Engineering Co., Ltd.
West Point Manufacturing Co.
Wills, W. D., & H. O.

(*b*) ABRASIVES AND REFRACTORIES

Carborundoum Co., Ltd.

(*c*) AERONAUTICS AND AERONAUTICAL ENGINEERING

Associations, Institutions, Societies, etc.
Aeronautical Research Council
Air Ministry Library
Amsterdam. Nationaal Luchtvaartlaboratorium
British European Airways
British Internal Combustion Engine Research Association
College of Aeronautics
Institution of Mechanical Engineers
International Civil Aviation Organization
Ministry of Supply. Aeronautical Inspection Directorate Library
Ministry of Supply. Aeroplane and Armament Experimental Establishment
Ministry of Supply. Directorate of Guided Weapons Research and Development
Ministry of Supply. Royal Aircraft Establishment
Ministry of Supply. RAE/Rocket Propulsion Department
N.A.T.O., Advisory Group for Aeronautical Research and Development
Royal Aeronautical Society
U.S. Air Force, Headquarters Third Air Force

Industrial and Commercial Concerns
Boulton Paul Aircraft, Ltd.
Bristol Aeroplane Co., Ltd.
Brown, David, & Sons (Huddersfield), Ltd.
De Havilland Aircraft Co., Ltd.
English Electric Co.
Fairey Aviation Co., Ltd.
Godfrey, Sir George, & Partners, Ltd.
K. Nederlandse Vliegtuigenfabriek 'Fokker' N.V.
Napier, D., & Son, Ltd.
Percival Aircraft, Ltd.
Roe, A. V., & Co., Ltd.
Roe, A. V., Canada, Ltd.
Rotol, Ltd.
Saunders-Roe, Ltd.

Short Bros. & Harland, Ltd.
Svenska Aeroplan Aktiebolaget (Saab Aircraft Co.)
United Aircraft Corporation Library
Vickers-Armstrongs, Ltd. (Aircraft Section)

(*d*) Cement, glass and ceramics

Associations, Institutions, Societies, etc.
British Ceramic Research Association
Cement and Concrete Association
Instituto del Cemento Portland Argentino
North Staffordshire Technical College

Industrial and Commercial Concerns
Alloa Glasswork Co., Ltd.
Associated Portland Cement Manufacturers, Ltd.
Carborundum Co., Ltd.
Compagnie Générale d'Electricité
Pilkington Brothers, Ltd.

(*e*) Chemical industries (general)

Associations, Institutions, Societies, etc.
India. National Chemical Laboratory
Institute of Seaweed Research
Institution of Chemical Engineers
Kemian Keskusliitto (Central Chemical Association)
Ministry of Supply. Radiochemical Centre
Research Association of British Rubber Manufacturers
Research Organization of Ships' Compositions Manufacturers, Ltd.
Société de Chimie Industrielle

Industrial and Commercial Concerns
African Explosives and Chemical Industries, Ltd
Albright & Wilson, Ltd.
Associated Ethyl Co., Ltd.
B.B. Chemical Co., Ltd.
B.X. Plastics, Ltd.
Baker Perkins, Ltd.
Bataafsche Petroleum Maatschappij, N.V.
Beck, Koller & Co. (England), Ltd.
Beecham Research Laboratories, Ltd.
Bengal Chemical & Pharmaceutical Works, Ltd.
Boake, A., Roberts & Co , Ltd.
Bofors Aktiebolaget
Borax Consolidated, Ltd
British Dyewood Co , Ltd.
British Oxygen Co., Ltd
British Ratin Co , Ltd.
British Titan Products Co., Ltd.
Brotherton & Co., Ltd.
Brown & Forth, Ltd.
Burt, Boulton & Haywood, Ltd.
Bush, W. J., & Co., Ltd.
Campbell, Rex, & Co., Ltd.
Chiswick Products, Ltd.
Clayton Aniline Co., Ltd.
Coalite & Chemical Products, Ltd.
Crown Cork Co., Ltd.
Du Pont de Nemours, E.I., & Co.
Eaglescliffe Chemical Co , Ltd
Eccles, J. G., & Co., Ltd.
Electrolytic Zinc Co. of Australia, Ltd.
Esso Development Co., Ltd.
Evans, Norman, & Rais, Ltd.
Extractors (Hull), Ltd.
Farbenfabriken Bayer
Fisons, Ltd
Fullers' Earth Union, Ltd.
Geigy Co., Ltd.
Glaxo Laboratories, Ltd.
Graesser, R., Ltd.
Graesser Salicylates, Ltd.
Hardman & Holden, Ltd.
Hedley, Thomas, & Co , Ltd
Holt, Douglas (1919), Ltd.
Howards of Ilford, Ltd.
Imperial Chemical Industries, Ltd.
I.C.I., Ltd., Billingham Division
I.C.I., Ltd., Dyestuffs Division
I.C.I., Ltd , General Chemical Division
I.C.I., Ltd., Lime Division
I.C.I., Ltd., Nobel Division
I.C.I., Ltd., Wilton Works
Incandescent Heat Co., Ltd.
Laporte Chemicals, Ltd.
Magnesium Elektron, Ltd.
Manderstam, L. H., & Partners, Ltd.
Marchon Products, Ltd
May & Baker, Ltd.
Menley & James, Ltd.
Monsanto Chemicals, Ltd.
Morson, Thomas, & Son, Ltd.
Oy Keskuslaboratorio — Centrallaboratorium Ab
Pest Control, Ltd.
Petrochemicals, Ltd.
Polak & Schwarz's Essencefabricken, N.V.
Reckitt & Colman, Ltd.
Roche Products, Ltd
Scott, George, & Son (London), Ltd.
Shell Petroleum Co., Ltd.
Spence, Peter, & Sons, Ltd.
Sutcliffe, Speakman & Co., Ltd.
Unilever, Ltd.
Vitamins, Ltd.
Westbrook Lanolin Co.
Whiffen & Sons, Ltd.

(*f*) CLOTHING INDUSTRY

Barrett Street L.C.C. Technical College
British Boot, Shoe and Allied Trades Research Association
British Hat and Allied Feltmakers Research Association
Clark, C., & J., Ltd.
Joint Clothing Council, Ltd.

(*g*) ELECTRICITY AND ELECTRONICS, INCLUDING ELECTRICAL ENGINEERING AND TELECOMMUNICATIONS

Associations, Institutions, Societies, etc.
Admiralty, Royal Naval Torpedo Factory
Admiralty, Signal and Radar Establishment
Allen West & Co., Ltd.
British Broadcasting Corporation
British Electrical and Allied Industries Research Association
British Electrical and Allied Manufacturers Association Inc.
British Electrical Development Association
British Electricity Authority
British Electricity Authority, South-Eastern Division
British Institution of Radio Engineers
College of Industrial Management and Engineering
Department of Atomic Energy.
D.S.I.R. Radio Research Station
Institution of Electrical Engineers
Ministry of Supply. Radar Research Establishment
Ministry of Supply. Royal Aircraft Establishment
Ministry of Supply. S R.D.E.
New Zealand. General Post Office
North-Western Electricity Board
Post Office, Engineer-in-Chief's Library
Services Electronics Research Laboratory
World Power Conference (British National Committee)

Industrial and Commercial Concerns
Allmänna Svenska Elektriska Aktiebolaget (ASEA)
Associated Electrical Industries, Ltd.
Automatic Telephone & Electric Co., Ltd.
Britalian Steel Construction Co.
British Insulated Callender's Cables, Ltd.
British Telecommunications Research, Ltd.
British Thomson-Houston Co., Ltd.
Bush Radio, Ltd.
Compagnie Générale d'Electricité
Cossor, A. C., Ltd.
Dawe Instruments, Ltd.
Decca Radar, Ltd.
Electroflo Meters Co., Ltd.
Elliott Brothers (London), Ltd.
English Electric Co., Ltd.
Elcontrol, Ltd.
Ericsson Telephones, Ltd.
Ferguson Pailin, Ltd.
Ferranti, Ltd.
General Electric Co , Ltd.
Goodmans Industries, Ltd
Henley's, W. T., Telegraph Works Co., Ltd.
Keith Blackman, Ltd.
Lincoln Electric Co., Ltd.
London Electric Wire Co , & Smiths, Ltd.
McMichael Radio, Ltd.
Marconi's Wireless Telegraph Co., Ltd.
Metropolitan-Vickers Electrical Co., Ltd.
Micanite & Insulators Co., Ltd.
Midgley Harmer, Ltd.
Mullard, Ltd., Equipment Division
Mullard Blackburn Works, Ltd.
Mullard-Philips Group
Parsons, C. A., & Co., Ltd.
Plessey Co., Ltd.
Rotax, Ltd.
Siemens Brothers & Co., Ltd.
Standard Telephones & Cables, Ltd.
Thorn Electrical Industries, Ltd.
Ultra Electric, Ltd.
Verity's, Ltd. (Electrical Engineers)
Wayne Kerr Laboratories, Ltd.
Wego Condenser Co., Ltd

(*h*) ENGINEERING—GENERAL (*See also* (*c*) *above*).

Associations, Institutions, Societies, etc.
Admiralty. Naval Ordnance Department
Admiralty. Royal Naval Engineering College
British Institute of Engineering
Cambridge University. Engineering Laboratory
Case Institute of Technology
Chalmers Tekniska Högskolas Bibliotek
Copper Development Association
Georgia Institute of Technology Library
Glasgow. Royal Technical College
Institute of Executive Engineers and Officers
Institute of Welding
Institution of Engineering Inspection
Institution of Engineers and Shipbuilders in Scotland

Institution of Mechanical Engineers
Institution of Production Engineers
Melbourne and Metropolitan Board of Works
National Institute of Agricultural Engineering
North-East Coast Institution of Engineers and Shipbuilders
World Power Conference (British National Committee)
World Power Conference (International Executive Council)

Industrial and Commercial Concerns
Ashmore Benson, Pease, & Co., Ltd.
Babcock & Wilcox, Ltd.
Bolton Railway Wagon & Ironworks Co., Ltd.
Carborundum Co., Ltd.
Cornercroft, Ltd.
Davey, Paxman & Co., Ltd.
Electroflo Meters Co., Ltd.
Ferranti, Ltd.
G. K. N. Group Research Laboratory
Guest Industrials, Ltd.
Holmes, W. C., & Co., Ltd.
Howden, James, & Co. (Land), Ltd.
Incandescent Heat Co., Ltd.
Incorporated Plant Engineers
Industrial Distributors (Sales), Ltd.
International Harvester Co.
Kellogg International Corporation
Kent, George, Ltd.
Luxfer, Ltd.
Manchester Tinning Co., Ltd.
Mitchell, James, & Son (Greenock), Ltd.
Napier, D., & Son, Ltd.
Nash & Thompson, Ltd.
Peebles, Bruce, & Co., Ltd.
Pillin, John B., Ltd.
Ransome & Marles Bearing Co., Ltd.
Redwing, Ltd.
Riley Dodds Australia, Ltd.
Rotinoff Group
Rubery Owen & Co., Ltd.
Serck Radiators, Ltd.
Simon-Carves, Ltd.
Singer Manufacturing Co., Ltd.
Staveley Iron & Chemical Co., Ltd.
Sutcliffe, Speakman & Co., Ltd.
Thompson Bros. (Bilston), Ltd.
Thompson, J. Langham, Ltd.
Tube Investments, Ltd.
United Steel Co., Ltd.
Vickers-Armstrongs, Ltd.
Wakefield, C. C., & Co., Ltd.
Whessoe, Ltd.
Woodall-Duckham Construction Co., Ltd.
Wykeham, C., & Co., Ltd.

(*i*) ENGINEERING—AUTOMOBILE

Associations, Institutions, Societies, etc.
British Transport Commission
Motor Industry Research Association

Industrial and Commercial Concerns
Austin Motor Co., Ltd.
B.S.A. Group Research Centre
Ferguson, Harry, Ltd.
Ford Motor Co., Ltd.
Humber, Ltd.
Jowett Cars, Ltd.
Midland Motor Cylinder Co., Ltd.
Napier, D., & Son, Ltd.
Rolls Royce, Ltd.
Rotax, Ltd.
Rubery Owen & Co., Ltd.
Serck Radiators, Ltd.
Simmonds Aerocessories, Ltd.
Standard Motor Co., Ltd.
Vauxhall Motors, Ltd.
Vickers-Armstrongs, Ltd.
Wakefield, C. C., & Co., Ltd.

(*j*) ENGINEERING—CIVIL

Associations, Institutions, Societies, etc.
Cement and Concrete Association
D.S.I.R. Hydraulics Research Station
D.S.I.R. Road Research Laboratory
Institution of Civil Engineers
Institution of Structural Engineers
Kenya. Public Works Department
Melbourne and Metropolitan Board of Works
Westminster Technical College

Industrial and Commercial Concerns
Braithwaite & Co , Engineers, Ltd.
British Steel Piling Co., Ltd.
Cawood Wharton & Co., Ltd.
Cementation Co , Ltd.
Export Group for the Constructional Industries
Laing, John, & Son, Ltd.
Rotinoff Group
Soil Mechanics, Ltd

(*k*) ENGINEERING—HYDRAULIC AND WATER TREATMENT

Associations, Institutions, Societies, etc
Admiralty. Naval Ordnance Department
British Hydromechanics Research Association
Central Water and Power Commission
D.S.I.R. Hydraulics Research Station
Victoria. State Rivers and Water Supply Commission

CLASSIFIED INDEX

Industrial and Commercial Concerns
Britalian Steel Construction Co.
NEYRPIC. Service de Documentation
Permutit Co., Ltd.
Rotol, Ltd.

(*l*) ENGINEERING—MARINE

Institute of Marine Engineers

(*m*) ENGINEERING—MECHANICAL

Associations, Institutions, Societies, etc.
Admiralty. Engineer-in-Chief's Department
Admiralty. Naval Ordnance Department
Admiralty. Royal Naval Torpedo Factory
British Internal Combustion Engine Research Association
Department of Agriculture for Scotland. Scottish Machinery Testing Station.
Engineering, Ltd.
Institution of Mechanical Engineers
Ministry of Supply. Armament Design Establishment
Ministry of Supply. F.V.R.D.E.
Ministry of Supply. National Gas Turbine Establishment
Parsons and Marine Engineering Turbine Research and Development Association
Production Engineering Research Association

Industrial and Commercial Concerns
Air Control Installations, Ltd.
Allen, Edgar, & Co., Ltd.
Babcock & Wilcox, Ltd.
Boydell, E., & Co., Ltd.
Britalian Steel Construction Co.
British Steel Piling Co., Ltd.
British Timken, Ltd.
British United Shoe Machinery Co., Ltd.
Brown, David, & Sons (Huddersfield), Ltd.
Darwins, Ltd.
Davey, Paxman & Co., Ltd.
Edwards, W., & Co. (London), Ltd.
Elliott Brothers (London), Ltd.
Enfield Cycle Co., Ltd.
Ferguson, Harry, Ltd.
Foster Wheeler, Ltd.
G. K. N. Group Research Laboratory
Keith, Blackman, Ltd.
Napier, D., & Son, Ltd.
Parsons, C. A., & Co., Ltd.
Redwing, Ltd.
Renold & Coventry Chain Co., Ltd.
Rotinoff Group
Rubery Owen & Co., Ltd.
Serck Radiators, Ltd.
Thompson, John (Wilson Boilers), Ltd.
Tilley Lamp Co., Ltd.
Timken Roller Bearing Co.
Verity's, Ltd. (Electrical Engineers)
Wolf Electric Tool, Ltd.
Wolseley Sheep Shearing Machine Co. Ltd.
Wykeham, C., & Co., Ltd.

(*n*) FOOD INDUSTRIES

Associations, Institutions, Societies, etc.
Bread Research Institute of Australia
Brewing Industry Research Foundation
British Baking Industries Research Association
British Food Manufacturing Industries Research Association
D.S.I.R. Ditton Laboratory
D.S.I.R. Food Investigation Organisation
D.S.I.R. Low Temperature Research Station
D.S.I.R. Pest Infestation Laboratory
Institut des Fruits et Agrumes Coloniaux
Ministry of Food Library
Reading University. National Institute for Research in Dairying
Research Association of British Flour-Millers.
Westminster Technical College

Industrial and Commercial Concerns
Allied Bakeries Research Laboratories, Ltd.
Baker Perkins, Ltd.
British Trawlers' Federation, Ltd.
Bush, W. J., & Co., Ltd.
Chivers & Sons, Ltd.
Crown Cork Co., Ltd.
Distillers Co., Ltd.
Evans, Norman, & Rais, Ltd.
Extractors (Hull), Ltd.
Guinness, Arthur, Son & Co. (Park Royal), Ltd.
Heinz, H J., Co , Ltd.
Lyons, J., & Co., Ltd.
Metal Box Co., Ltd.
Reckitt & Colman, Ltd
Rowntree & Co., Ltd.
Tate & Lyle, Ltd.
Unilever, Ltd.
United Dairies Research Laboratory

(o) FUEL TECHNOLOGY (*See also* section 12)

Associations, Institutions, Societies, etc.
British Coal Utilisation Research Association
British Coke Research Association
D.S.I.R. Fuel Research Station
Institute of Petroleum
Institution of Gas Engineers
Ministry of Fuel and Power
Ministry of Supply. National Gas Turbine Establishment
National Coal Board
North Thames Gas Board
North-Western Gas Board, Liverpool Group
Westminster Technical College
World Power Conference (British National Committee)
World Power Conference (International Executive Council)

Industrial and Commercial Concerns
Anglo-Iranian Oil Co. (Kirklington Hall)
Anglo-Iranian Oil Co., Ltd. (Sunbury-on-Thames)
Anglo-Iranian Oil Co., Ltd. (Britannic House)
Associated Portland Cement Manufacturers, Ltd.
Babcock & Wilcox Co. (U.S.A.)
Bataafsche Petroleum Maatschappij, N.V.
Burmah Oil Co., Ltd.
Calor Gas (Distributing) Co., Ltd.
Coalite & Chemical Products, Ltd.
Elliott, H. J., Ltd.
Esso Development Co., Ltd.
Gulf Oil (Great Britain), Ltd.
Incandescent Heat Co., Ltd.
Iraq Petroleum Co., Ltd.
Kellogg International Corporation
Koninklijke/Shell-Laboratorium
Kuwait Oil Co., Ltd.
Lobitos Oilfields, Ltd.
Manchester Oil Refinery, Ltd.
National Benzole Co., Ltd.
National Oil Refineries, Ltd.
Petrocarbon, Ltd.
Pittsburgh Consolidation Coal Co.
Powell Duffryn Technical Services, Ltd.
Shell Petroleum Co., Ltd
Staveley Iron & Chemical Co., Ltd
Sun Oil Co.
Thompson, John (Wilson Boilers), Ltd.
Vacuum Oil Co., Ltd
Wakefield, C. C., & Co., Ltd.
Whessoe, Ltd.

(p) METALLURGY AND METALS PRODUCTION

Associations, Institutions, Societies, etc.
Admiralty. Royal Naval Torpedo Factory
Aluminium Development Association
British Cast Iron Research Association
British Iron and Steel Federation
British Iron and Steel Research Association
British Non-Ferrous Metals Research Association
British Steel Castings Research Association
British Welding Research Association
Copper Development Association
Imperial Institute Library
Institute of Metals
Institute of Welding
Institution of Engineers and Shipbuilders in Scotland
Institution of Mining and Metallurgy
Instytut Metalurgii im. S. Staszica
Iron and Steel Institute
Metal Trades Employers' Association
North-East Coast Institution of Engineers and Shipbuilders
Production Engineering Research Association
Tin Research Institute
Worshipful Company of Goldsmiths
Zinc Development Association

Industrial and Commercial Concerns
Allen, Edgar, & Co., Ltd.
Aluminium Laboratories, Ltd.
Aluminium Wire & Cable Co., Ltd
B.S.A. Group Research Centre
Babcock & Wilcox Co. (U.S.A.)
Bofors Aktiebolaget
Bolton, Thomas, & Sons, Ltd.
British Aluminium Co., Ltd
British Australian Lead Manufacturers Pty., Ltd.
Broken Hill Pty. Co., Ltd.
Brown-Firth Research Laboratories
Chloride Electrical Storage Co., Ltd.
Colvilles, Ltd
Electrolytic Zinc Co. of Australia, Ltd.
G. K. N. Group Research Laboratory
Garringtons, Ltd.
Goodlass Wall & Lead Industries, Ltd.
Guillermo Decker S.A.
High Duty Alloys, Ltd.
I.C.I., Ltd., Metals Division
Johnson, Matthey & Co., Ltd.
Magnesium Elektron, Ltd
Metal Box Co., Ltd.
Mond Nickel Co., Ltd.
National Smelting Co., Ltd.
New London Electron Works, Ltd.
Nitralloy, Ltd.
Paul, K. S., Ltd
Round Oak Steel Works, Ltd.
Shelton Iron Steel & Coal Co., Ltd.
Stanton Ironworks Co., Ltd.
Staveley Iron & Chemicals Co., Ltd.
Sterne, L., & Co., Ltd.
Suffolk Iron Foundry (1920), Ltd.

Tata Iron & Steel Co., Ltd.
Taylor Bros. & Co., Ltd.
Thomas, Richard, & Baldwin's, Ltd.
Timken Roller Bearing Co.
United Steel Co., Ltd.
Walterisation Co., Ltd.

(*q*) Mining and minerals treatment

Associations, Institutions, Societies, etc.
Ballarat School of Mines and Industries
D.S.I.R. Geological Survey and Museum
Imperial Institute Library
Institution of Mining and Metallurgy
Ministry of Fuel and Power
Ministry of Fuel and Power. Safety in Mines Research Establishment
National Coal Board
Royal Institute of Chartered Surveyors
Royal School of Mines

Industrial and Commercial Concerns
Austral Development, Ltd.
Bataafsche Petroleum Maatschappij, N.V.
Bolidens Gruvaktiebolag
Cementation Co., Ltd.
Kuwait Oil Co., Ltd.
Powell Duffryn Technical Services, Ltd.

(*r*) Paints and dyestuffs

Research Associations
Research Association of British Paint, Colour and Varnish Manufacturers
Research Council of the British Whiting Federation

Industrial and Commercial Concerns
British Paints, Ltd.
Coates Brothers & Co., Ltd.
Du Pont de Nemours, E.I., & Co.
Fulton, William, & Sons, Ltd.
Geigy Co., Ltd.
Goodlass Wall & Lead Industries, Ltd.
I.C.I., Ltd. Dyestuffs Division
I.C.I., Ltd, Paints Division
Petrochemicals, Ltd.

(*s*) Pharmacy and pharmaceutical products

Associations, Institutions, Societies, etc.
Chilean Iodine Educational Bureau
London University. School of Pharmacy
Pharmaceutical Society of Great Britain

Industrial and Commercial Concerns
Allen & Hanburys, Ltd.
Beecham Research Laboratories, Ltd.
Bush, W. J., & Co., Ltd.
Crookes Laboratories, Ltd
Elliott, H. J., Ltd.
Glaxo Laboratories, Ltd.
Howards of Ilford, Ltd.
Johnson & Johnson (Great Britain), Ltd.
Lilly, Eli, & Co., Lilly Research Laboratories
May & Baker, Ltd.
Menley & James, Ltd.
Organon Laboratories, Ltd.
Parke, Davis & Co., Ltd.
Reckitt & Colman, Ltd.
Roche Products, Ltd.
Smith, T. & H., Ltd.
Smith & Nephew Research, Ltd.
Vitamins, Ltd.
Wyeth, John, & Brother, Ltd.

(*t*) Plastics

Associations, Institutions, Societies, etc.
British Plastics Federation
Research Association of British Rubber Manufacturers

Industrial and Commercial Concerns
B.X. Plastics, Ltd.
Bakelite, Ltd.
Beck Koller & Co. (England), Ltd.
Boake, A., Roberts & Co., Ltd.
British Celanese, Ltd.
British Cellophane, Ltd.
British Geon, Ltd.
British Industrial Plastics, Ltd.
British Ropes, Ltd.
British Xylonite Co., Ltd.
Du Pont de Nemours, E.I., & Co.
I.C.I, Ltd., Leathercloth Division
I.C.I., Ltd., Plastics Division
Melwood Thermoplastics, Ltd
Petrochemicals, Ltd.
Revertex, Ltd.
Yarsley, Dr. V. E. (Research Laboratories), Ltd.

(*u*) Printing and paper industries

Associations, Institutions, Societies, etc
British Paper and Board Industry Research Association
Deutsche Gesellschaft für Forschung im graphischen Gewerbe E.V
London School of Printing and Graphic Arts Library

Oy Keskuslaboratorio—Centrallaboratorium Ab
Printing, Packaging and Allied Trades Research Association

Industrial and Commercial Concerns
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Bowaters Development & Research, Ltd.
Coates Brothers & Co., Ltd.
Copigraph, Ltd.
Crown Cork Co., Ltd.
Lawes Rabjohns, Ltd.
Remploy, Ltd.
Wiggins Teape Group Research Organisation

(v) RUBBER

Associations, Institutions, Societies, etc.
British Rubber Producers' Research Association
Institution of the Rubber Industry
Northern Polytechnic and National College of Rubber Technology Library
Research Association of British Rubber Manufacturers
Rubber Research Institute of Malaya

Industrial and Commercial Concerns
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B.B. Chemical Co., Ltd.
British Geon, Ltd.
Dunlop Rubber Co., Ltd.
Goodyear Tyre & Rubber Co. (Great Britain), Ltd.
Revertex, Ltd

(w) SCIENTIFIC INSTRUMENTS

Associations, Institutions, Societies, etc.
British Scientific Instrument Research Association
Institute of Physics
Ministry of Health. National Blood Transfusion Service Laboratories
Ministry of Supply. Armament Design Establishment

Industrial and Commercial Concerns
Cossor, A. C., Ltd.
Dawe Instruments, Ltd.
Ericsson Telephones, Ltd.
Goodmans Industries, Ltd.
Hilger & Watts, Ltd.
Kelvin & Hughes, Ltd.
Kent, George, Ltd.
Megatron, Ltd.
Midgley Harmer, Ltd.
Mullard, Ltd., Equipment Division
Nash & Thompson, Ltd.
Shell Petroleum Co., Ltd.
Smith, S., & Sons (England), Ltd.
Sperry Gyroscope Co., Ltd.
Sunvic Controls, Ltd.
Thompson, J. Langham, Ltd.
Wykeham, C., & Co., Ltd.

(x) SHIPBUILDING

British Shipbuilding Research Association
Institution of Engineers and Shipbuilders in Scotland
North-East Coast Institution of Engineers and Shipbuilders

(y) TEXTILES

Associations, Institutions, Societies, etc.
Ahmedabad Textile Industry's Research Association
British Cotton Industry Research Association
British Hat and Allied Feltmakers Research Association
British Jute Trade Research Association
British Rayon Research Association
British Wool Marketing Board
Hosiery and Allied Trades Research Association
International Wool Secretariat
Lace Research Association
Silk and Rayon Users' Association
Textile Institute
Wool Industries Research Association

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British Nylon Spinners, Ltd.
British Rayon and Synthetic Fibres Federation
British Ropes, Ltd.
Courtaulds, Ltd.
Evans, Norman, & Rais, Ltd.
Harbens, Ltd.
I.C.I., Ltd., Leathercloth Division
I.C.I., Ltd., 'Terylene' Council
Klinger Manufacturers Co., Ltd.
Lansil, Ltd.
Smith & Nephew Research, Ltd.
T.M.M. (Research), Ltd.
Tootal Broadhurst Lee Co., Ltd.

(z) WOOD AND TIMBER

Centre Technique Forestier Tropical
D.S.I.R. Forest Products Research Association
Timber Development Association

20. AGRICULTURAL ORGANIZATIONS, INCLUDING FORESTRY AND HORTICULTURE (63)

Associations, Institutions, Societies, etc.
Agricultural Economics Society
Australia. Commonwealth Forestry and Timber Bureau
British Wool Marketing Board
Centre Technique Forestier Tropical
Chilean Iodine Educational Bureau
Commission Internationale des Industries Agricoles
Commonwealth Agricultural Bureaux
Cooper Technical Bureau
Copenhagen. Kgl. Veterinaer-og Landbohøj Skoles Bibliotek
Department of Agriculture for Scotland. Scottish Machinery Testing Station.
D.S.I.R. Forest Products Research Laboratory
D.S.I.R. Pest Infestation Laboratory
Edinburgh and East of Scotland College of Agriculture
Forestry Commission Library and Documentation Centre
Freshwater Biological Association
Gold Coast. Department of Soil and Land-use Survey
Grassland Research Institute
Hannah Dairy Research Institute
Horace Plunkett Foundation
Imperial College of Tropical Agriculture
Imperial Institute
Incorporated Society of Auctioneers and Landed Property Agents
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International Wool Secretariat
John Innes Horticultural Institution
Kilimanjaro Native Co-operative Union, Ltd.
London University. Wye College
Ministry of Agriculture and Fisheries
Ministry of Agriculture and Fisheries. Infestation Control Division
N.Z. Forest Products, Ltd.
National Farmers' Union
National Federation of Young Farmers' Clubs
National Institute of Agricultural Engineering
New Zealand. Department of Scientific and Industrial Research
Oxford University. Imperial Forestry Institute
Oxford University. Institute for Research in Agricultural Economics
Reading University. National Institute for Research in Dairying
Rothamsted Experimental Station
Royal Agricultural Society of England
Royal Botanic Garden
Royal Horticultural Society
Royal Institution of Chartered Surveyors
St. Andrews House Library
South Africa. Department of Agriculture
South African Sugar Association Experiment Station
Sudan. Ministry of Agriculture
Tomato and Cucumber Marketing Board
West African Cacao Research Institute
West African Fisheries Research Institute

Industrial and Commercial Concerns
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Fisons, Ltd.
I.C.I., Ltd., Hawthorndale Laboratories
Imperial Tobacco Co., Ltd.
International Harvester Co.
Pest Control, Ltd.
Vitax, Ltd.

21. ORGANIZATIONS CONCERNED WITH DOMESTIC ECONOMY (64)

British Launderers' Research Association
Good Housekeeping Institute

22. PUBLISHING AND BOOKSELLING CONCERNS (65)

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Wilson, H. W., Co.

23. ORGANIZATIONS FOR INDUSTRIAL AND COMMERCIAL MANAGEMENT, INCLUDING ACCOUNTANCY (65)

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British Standards Institution
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British Wool Marketing Board
College of Estate Management
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New Zealand. Department of Industries and Commerce
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Svenska arbetsgivareforeningens bibliotek
Tomato and Cucumber Marketing Board
Trades Union Congress and Labour Party Library
Transport and General Workers Union
Uganda Development Corporation, Ltd.
Urwick, Orr & Partners, Ltd.

24. TRANSPORT ORGANIZATIONS

(*See also* sections 19 (*c*) and 19 (*f*)

British European Airways
British Shipbuilding Research Association
British Transport Commission
D.S.I.R. Road Research Laboratory
Institute of Transport
Institution of Naval Engineers
International Civil Aviation Organization
Ministry of Transport and Civil Aviation
New Zealand Railways Library
Norges Statsbaner (Norwegian State Railways)
Rootes Motors, Ltd.
South African Railways and Harbours

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General Advertising Co. of London, Ltd.
Graham & Gillies, Ltd.
Handelshojskolens Bibliotek
London Press Exchange, Ltd.
McCann-Erickson Advertising Co.
Scott-Turner & Associates, Ltd.
Stuart Advertising Agency
Thompson, J. Walker, Co., Ltd.

Market Research

Roberts, Fredk. G.
T.I. (Export), Ltd.

26. ORGANIZATIONS CONCERNED WITH THE ARTS AND ENTERTAINMENT (7)

British Film Institute
English Folk Dance and Song Society
Royal Society of Arts
Worshipful Company of Goldsmiths

27. ARCHITECTURAL, BUILDING AND TOWN PLANNING ORGANIZATIONS (7)

Associations, Institutions, Societies, etc.
Architectural Association, Inc.
Cement and Concrete Association
Copper Development Association
D.S.I.R. Building Operations Research Unit
D.S.I.R. Building Research Station
Incorporated Society of Auctioneers and Landed Property Agents
Instituto del Cemento Portland Argentino
L.C.C. Member's Library
Metropolitan Police. Architects and Surveyors Department
Ministry of Housing and Local Government
Ministry of Works Library
Royal Institute of British Architects
Royal Institution of Chartered Surveyors
St. Andrews House Library
Shopfitting Research and Development Council
Town Planning Institute

Industrial and Commercial Concerns
Costain, Richard, Ltd.
Export Group for the Constructional Industries
Gibb, Sir Alexander & Partners
Luxfer, Ltd.
Plaster Products (Greenhithe), Ltd.

28. ORGANIZATIONS CONCERNED WITH PHOTOGRAPHY AND DOCUMENT REPRODUCTION (77)

Associations, Institutions, Societies, etc.
British Film Institute
Film Producers Guild, Ltd.
Montevideo Universidad. Instituto de Cinematografía
Royal Photographic Society of Great Britain
Scientific Film Association

Industrial and Commercial Concerns
Edison Swan Electric Co., Ltd.
Ilford, Ltd.
Kodak, Ltd., Research Library
Lawes Rabjohns, Ltd.
University Microfilms Inc. (Great Britain), Ltd.
West, A., & Partners, Ltd.

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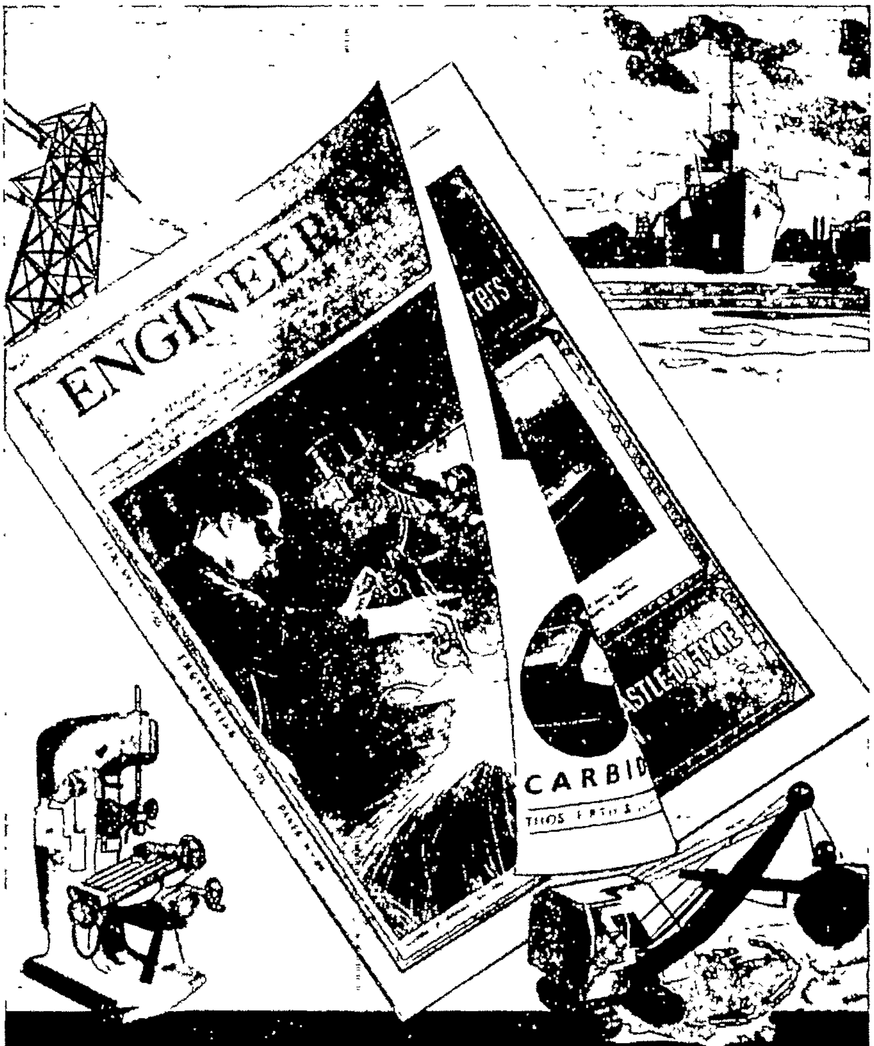

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ASLIB PROCEEDINGS

Volume 6 May 1954 Number 2

INTRODUCTION

A GLANCE at the Aslib Calendar printed in the monthly bulletin, *Aslib Information*, will show that there has been great activity in the months since the Aslib Annual Conference in September, 1953. Indeed, the Branches and the London Headquarters together have organized so many meetings that only a proportion of the papers given thereat can be included in *Aslib Proceedings*. In order to preserve a record of activities, however, as far as possible the names of speakers and the titles of their papers will be mentioned in these introductory pages, a note being added when the paper is printed in the issue concerned.

The series of Aslib Winter Meetings for the session 1953/54 opened on 27th October with an evening devoted to the consideration of 'Information available to exporters'. The Chair was taken by Mr. J. M. Reid, formerly of Production Engineering, Ltd., and the speakers were Mr. Martin Maddan, who set out what information was needed and why, and Mr. Kenneth A. Mallaber, who described what information could be obtained from the Board of Trade and other relevant Government departments. Both these papers are printed in full.

At the November Winter Meeting a talk on 'Special library insurance' was given by Mr. J. M. Hiron, London Fire and Accident Superintendent of the Beacon Insurance Co., Ltd. The Chairman was Mr. K. Howard Drake, Institute of Advanced Legal Studies. A summary of Mr. Hiron's talk, together with further points given in reply to questions, is printed in this issue.

At the Third Winter Meeting, on 9th December, Miss E. Littlejohn, Assistant Secretary and Information Officer of the National Council of Social Service, described the organization of information services for the Citizens' Advice Bureaux. It is hoped to be able to include a summary of her talk in a subsequent issue of the *Proceedings*.

The autumn activities of the Midlands Branch started with a joint meeting with the Coventry Engineering Society at Coventry on 13th October, when Mr. E. G. Hill spoke on the Technical Information and Documents Unit of the Department of Scientific and Industrial Research ; the Chair was taken by Professor T. U. Matthew. The paper is included in full in this issue. So also is the interesting paper on 'Sources of Russian scientific information' given by Dr. A. L. Mackay at the Midlands Branch Meeting at Birmingham on 4th December. His paper was followed by one on the economic aspects of the same subject by Mr. Barker which, unfortunately, is not yet available for publication.

The Northern Branch of Aslib organized a two-day conference at Bradford on 29th and 30th October. Papers were given by Mr. V. D. Freedland on 'Industry, information and research' (included in this issue), Mr. H. Blackshaw on 'The second edition of *The Colour Index*', and Mr. C. O. Clark on 'The Commission Dyer, Printer and Finisher's sources of information'. The Chair was taken in the morning by Mr. G. U. Averdieck, President of the Bradford Chamber of Commerce, and in the afternoon by Mrs. Alice Barber, J.P., Chairman of the Bradford City Libraries, Art Galleries and Museums Committee. In December a meeting was held at Doncaster at which Mr. A. R. Cameron, of A. V. Roe & Co., Ltd., spoke on special librarians and some of their problems, and Mr. F. Newby, of Hardman & Holdman, Ltd., discussed the managerial attitude to technical libraries. The Chair was taken by Mr. E. N. Simons (Edgar Allen & Co., Ltd.), Chairman of the Northern Branch.

On 2nd December the Economics Group held an open meeting on 'Statistics : their compilation, use and application'.

Records of 1954 meetings in London and elsewhere, including the Scottish Branch Conference, will be dealt with in subsequent issues of the *Proceedings*.

Apart from the above-mentioned papers given at meetings organized by Aslib, this issue contains the second annual instalment of 'Signposts : selections from the 1953 special library literature'. There is also a summary of the annual report of the National Central Library stressing those details likely to be of most interest to special librarians, and a statement on training for librarians and documentalists which has been sent by Aslib to the International Federation for Documentation.

E. M. R. DITMAS,
Editor.

INFORMATION AVAILABLE TO EXPORTERS

London, 27th October, 1953

At this, the first of the 1953/54 series of Aslib Winter Meetings, the Chairman, Mr. J. M. Reid, formerly of Production Engineering, Inc., intimated that he was sure that the occasion would be a profitable one. Mr. Maddan would say what information is needed by the exporter and why, and would set the course for Mr. Mallaber, who would then describe how much and what kind of information can be obtained from the Board of Trade and other Government departments. Enough time would be left for discussion in the hope that further items of information might be added by some of those in the audience. The Chairman then introduced the speakers.

I

WHAT IS NEEDED AND WHY

By Martin Maddan

The General Electric Co. Ltd.

Author of the forthcoming book 'Profitable Export Marketing'

I THINK that my part in the proceedings to-night is certainly the easier part and I think that it is perhaps right that it should be the briefer part. I have to set, as your Chairman has said, a course which Mr. Mallaber has to follow, and I may, in setting the course, lead him into some rather murky and rough waters. We should therefore give him plenty of time to steer on an even keel through them.

What I want to say is something about why it is so essential for a commercial firm to have a wealth of information which often can be got for very little trouble if only you know where to get it. Market research is frequently thought of in terms of interviewing three thousand housewives, a hundred grocers or whatever it may be. It is not that sort of market research which I am going to talk about to-night. I am talking about the sort of information-getting which is peculiarly the job of the librarians of industry.

The detailed information that industry needs must, of course, be full and it must, of course, be up to date. I cannot emphasize that too much, for if it is not full, it is very possible that in presenting information for the departmental manager or export manager to work on you will, in fact, have misled him, because you will not have told him of some vital fact. To take an over-simplified case—something that you would obviously know about—if the manager said, 'Well now, tell me all about Canada, I am thinking about exporting baking powder there' : if you omitted to tell him that there were four million French-speaking people in Canada and he, therefore, omitted to put instructions in French on his pack, he has virtually lost a market of four million people before he starts.

Information must be up to date. It must be up to date in the sense, for instance, that census information can often be supplemented from other Government returns without waiting for the next census. There may be significant movements in population, or there may be new industries springing up that constitute a new market for the product. There is nothing more painful than fighting the last war, and to do so is just as disastrous in business as in anything else.

It is good marketing information that enables an export manager to maintain a dynamic control of his export marketing campaign. We sometimes hear it said that our exporters send products overseas with a take-it-or-leave-it attitude. If we want them to do much more than that—and certainly most of them do—if we want them to put real dynamism into our export marketing, then the managers who plan our export campaigns must have information on which to base their plans. It is the job of people like ourselves gathered here to-night to see that they have it.

The wealth of data that is published and available will be dealt with by Mr. Mallaber, particularly as regards what is published by the Board of Trade. It covers an enormous range, and I cannot over-emphasize how much greater it is, when you once start digging for it, than most of us imagine, and it is also surprising how numerous are the sources which you will find that will help you. They include bodies which you might never have thought of in some particular connection, and yet if you once start digging and following up contacts, you will experience many pleasant surprises.

What I intend to do is first of all to mention some of these sources, more or less as a catalogue without saying much about them, then briefly to run through under various subject headings the sort of information which an exporter often needs.

To start with sources. First of all, of course, I put the Board of Trade. Then there are bodies like the Federation of British Industries (F.B.I.), who have officers in their London headquarters looking after different areas of the world and also representatives overseas, and like the Dollar Exports Council which concentrates on Canada and the United States.

There are banks, most of which have foreign departments and they may have subsidiary banks, like Barclays (Dominion, Colonial and Overseas), or they may have affiliated banks in other countries which are useful sources of information ; and, of course, apart from our own banks, do not forget that foreign banks have branches in London.

There are Chambers of Commerce. We should bear in mind two types : there are the general Chambers such as, in London, the London Chamber of Commerce—which has a good commercial library—and there are Chambers with a more specific role, such as the American Chamber of Commerce in London, the French Chamber of Commerce in Great Britain, the British and Latin American Chamber of Commerce, which have specialized information on matters affecting trade between ourselves and the area in question.

There are trade associations and export groups ; they have export information. Some of them get unpublished information from the Customs and Excise, information which does not go into the ordinary published returns, which is much more detailed and much more up to date. The associations pay for this service and naturally they do not always give information to people who are not members of their association.

Then there is the British Standards Institution, which has information on foreign standards as well as on our own standards ; they have a working arrangement with their opposite numbers in other countries and so they have available for consultation foreign standards on all sorts of things—electric fires, paints, locomotives, textiles, more or less anything you like to think of under the sun.

There are the foreign embassies or, in the case of the Commonwealth countries and Eire, the High Commissioners' offices in London, which have commercial departments. Many of the embassies and High Commissioners' offices have libraries also and you can get a lot of information there ; they have newspaper cuttings, trade journals, and also many books of reference, including directories. One particular thing I want to mention is that the U.S. Department of Commerce brings out special reports dealing with the market for particular products in particular countries ; you may even get a report on such an out-of-the-way topic as the market for spades and machetes in Mexico, which would go into a great deal of detail on the requirements of the market, on the sort of steel, on the way they are distributed, on the price, on what the import duties are, and so on. It is always worth asking the American Embassy if they have any such reports on the subject you are interested in. These reports parallel the Board of Trade Special Register Service Reports (I haven't been speaking about those, but Mr. Mallaber will) ; as often happens, one source of information may give information which supplements that from another.

Now I want to turn to the headings under which you may find it necessary to look for information. First of all, the *country* to which the product has got to go. You must know the population of a country, how big it is, what the potential is, how many are urban dwellers and how many are rural dwellers, whether the urban dwellers are concentrated in big or small cities. A great deal of this information you can get quite simply from the Census, and it may be of real value to your export manager who is trying to plan a campaign in conjunction with his agent over there. The standard of living is also important, as is the social and economic background and the whole way of life—you might have a country with a high standard of living in the sense that the inhabitants were pretty well off, but they might have very conservative ways which would limit the market for certain products. On the industrial side, you have to consider the principal industries of a country ; they will give you quite an idea of the state of economic advancement of that country.

Geographic features are also important : is it a big country, is it small—is it compact ? This sort of information will have a direct influence on what your export manager does. It is not often realized, for instance, that if you were an export manager here in London and you had an agent in Vancouver, B.C., and you told him to go to Montreal to get something sorted out, you would be asking him to make a longer journey than you would have to make to go to Montreal yourself from London ; and so even a little geography may be very helpful. You have also got to consider climate, which affects the market for certain products. The type of government is important ; is it the sort of government that is suddenly going to freeze foreign earnings or seize all the profits, or nationalize the industry ? Such considerations are very important to the people who plan a company's exports.

There are other factors—language, education, currency, communications, port facilities—and I think you will begin to see the sense of them without going through them all. You can get much published data on them, and by talking to knowledgeable people it is usually possible to get colour which will enable you to fill in the picture you are trying to provide for your export people.

Let us now turn to *transit and local regulations*, as I have called them. They form a most tedious subject, but you will always be asked about them : import quotas, licences, tariffs, preferential duties, price control and so on. Every country seems to have got them in a legal tangle of 'wherewithals' and 'notwithstandings', and they often vary from one part of a country to another, in different states and provinces. Nevertheless, it is essential that this information is up to date and available to people trying to plan exports. It is something with which the Board of Trade and foreign embassies can help. It does not take much imagination to see how important this subject is. Suppose, as an illustration, you suddenly thought two or three years ago that you wanted to export motor cars to Australia and you sent out a consignment ; when they got there you would have found the country was closed to you because it had an embargo on the import of motor cars. So, however tedious, information on import licences and so on is information which you must provide.

This information also concerns the detailed marketing of a product. You may find that there is some sort of price control in operation, and you may find that the way it works is that the profit margins at the wholesale and retail stages of distribution are frozen ; if your policy, as a company, is to promote sales by giving your retailers extra profit—well, you will not be able to follow this policy and you may have to think of some other form of sales promotion, for instance advertising. So again, this is information which the export manager must have.

Now we come to the *potential market*. When I talk about potential market, I mean the total 'possible' market that your company might be able to get—not necessarily what is actually realizable. An idea of the size of the potential market does enable you to see how well you are actually doing compared with what you might theoretically be doing, and the comparison is most important. Has your company got to make much more effort than it is doing ? Or is it doing fairly well ? The sort of points I include under the potential market are the total number of possible customers, where they live, whether they are young people or old people, whether they are educated people or uneducated people. According to the products, so you will be able to list—or your export manager will be able to list for you—the criteria which will decide what the potential in the market is for the product, and your job is to provide him with information relating to these criteria.

You can get a lot of this information from census data. If it relates to consumer products—that is, things you buy over the retail counter—you will use the population census, but if it is a question of industrial products, then you will have to turn to the census of industry for that country, if there has been one ; but in many countries there has never been a census of industry, and as far as we are concerned in our lifetime, I do not suppose there ever will be, and in these countries you will have to get on as best you can without it. But even in these cases you may be able to get quite a lot of information together—from directories and from talks with informed people such as trade commissioners—as to how big a particular industry is, and how many firms there are in it, where they are located and so forth.

When you come to certain products, like domestic appliances that run on electricity or gas, there is certain other information you may be called upon to supply—voltages, wattages, cycles per second, phase and so on. This information is very hard to come by and in my experience you have to do a great deal of digging in the overseas country itself to get the complete picture, and so that may fall rather outside your province.

Let us now turn briefly to the *existing market*. The existing market is the market actually existing for the products of your competitors and for yourself ; it is different from the potential market, which is the total market that might exist. The points to examine under this heading are competitors, who uses the product and who buys it, methods and channels of distribution, business practice and trade terms. I have listed these points as being helpful to librarians trying to make an appreciation for a marketing executive about an export market.

Now for *advertising*. Advertising is a thing that may affect the export side of your operations as much as the home side, and the sort of information that you want to collect relates to what papers there are to advertise in, what circulation they have, who reads them, how many people read them, whether posters, films, radio and T.V. are available, and what are the costs ? You may say that this is more the work of an advertising agency, particularly an overseas one—and, of course, it is the work of an advertising agency—but your own export manager here at home trying to supervise as best he can markets which are two, three, four or five thousand miles away will want to be able to check. My recommendation is to try and organize yourselves so that this information gets built up in the firm, and so that it gets into the firm's library. If it happens to have been built up by somebody interested in one particular product of your firm's line, it should also be available to other people in the firm, and to make sure that it is so available the place to keep it is in the library ; then it will be there for all to see. If no one has built up this information, you may well have to collect it yourselves.

Then we come to the *retailer*. Here a census of distribution is obviously a mine of information to tell you how many retailers there are of a certain sort, to tell you what their volume of turnover is, how many big shops there are and how many small ones, how many are in chains, what areas they are in, whether they are in cities, whether they are in country areas, and so on. In some countries you will find that there has never been a retail census. A way out of this difficulty is to try and get in touch with the editors of foreign trade papers, and if you, as librarians, have the job of collecting information of this sort, do not hesitate to write to the editor of a trade paper. It does not matter if it is Germany or Timbuktu, Canada or Argentina, the editor will be interested to help you because he hopes he is going to get some of your firm's advertising. He will obviously know, as the editor of the paper dealing with the particular trade, quite a lot about that trade, so here is a source of information to supplement what is available in your library, though it is not perhaps really library information as such.

And finally we come to the *consumer*. The old business motto is, of course, that the consumer is king. The consumer is you and I when we go into a shop to try and buy something, and when we are told not to-day, or it's under the counter, or wouldn't you like some more. That's us, and it is very hard to find out about people like us. You may not think so with all the forms we have to fill in, income tax returns and all the rest of them. You may think that everybody knows all about us already, but they do not. Many, many thousands of pounds a year are spent by manufacturers on marketing research—polling consumers, if you like—to find out who their consumers are, what moves them to buy, what they buy, how often they buy—a whole lot of very detailed information which is not available from any other source.

You may ask why I mention this here, if the information can only be obtained by original research. I mention it for this reason. You may very likely get asked questions about consumers—what sort of people are they, how often do they buy, what sort of shops do they buy in, where do they live, do they buy on Saturdays, do they buy on Thursdays, and so on. Well, the answer is, unless you are very lucky, that no library can produce this sort of information and it is rarely any good searching around to try and do so. There are exceptions—and here I produce my exhibit, my only exhibit of the evening. Various advertising media, as they are called—newspapers, radio stations and so on where advertising is placed are known as media—conduct consumer surveys and they then publish the results as a service to their advertisers (and, of course, to promote the idea that they are splendid people to advertise with).

My exhibit is a survey done by the Canadian Daily Newspapers Association. This Association makes a survey every two years, which tells you in about two hundred pages what is the relative importance of different brands of every sort of product from porridge oats to gloves ; which are the popular brands in different areas ; it tells you which day of the week people go shopping ; it tells you what sort of articles they have in the house—is there a vacuum cleaner, is there this or is there that ? How old is it ? It tells you whether they bake at home or whether they buy all their baked products from the bakery. There is an enormous amount of detail.

So if you are asked to get detailed information about consumers as such, the answer is you cannot get it except through consumer surveys, and, therefore, unless you can lay your hands on some survey which has been published, you just cannot produce that information ; but you may be lucky and it is always worth while getting in touch with the main advertising media—magazines, newspapers, radio stations, billboard companies and so on—to see if they have done something. If they have not, your firm will have to have a survey made specially for it.

From what I have said you may think my subject has been all 'pie in the sky', because how many of us here actually work in a firm and have the sort of importance attached to us which is implied in what I have been talking about ? I should like to say straight away that I do not have the sort of importance attached to me that you might suppose from what I have just been saying, but, on the other hand, the tendency is growing for commercial companies to make use of detailed information, and to do detailed planning for overseas sales campaigns. That being so, whether you are actually inside a firm or whether you are in some trade association, whether you are in a public library or whether you are in the library of a specialized institution, you will get asked more and more for information concerning export markets.

The sort of information which you will get asked for is of the sort I have been talking about. Or you may get asked much vaguer questions—'Look, Mr. or Mrs. Librarian, we are a bit worried about Canada, we are thinking of going into Canada with bed-socks, and we would like to know all the information about bed-socks in Canada that you can produce for us'. Well, that is the moment when you have to sit down and rack your brains and think what it is your questioner really wants to know, and it is then that it may be useful to you to refer to some of these points which I have been talking about in this lecture, to see if they are applicable to Canada and to bed-socks, and, if necessary, to amend them to make them so. Thus you will be able to search out the information that you think is really wanted. I am sure that, as librarians, you are all familiar with the fact that it is not answering the question that is the really difficult part, but finding out what the question really is. This lecture may have helped you in clarifying that.

The scientific attitude to marketing—scientific because it is based on information rather than on hunches—is growing, and as it grows it is obvious that the role of the librarian in business will become more and more important.

II

INFORMATION FROM THE BOARD OF TRADE

By Kenneth A. Mallaber, F.L.A.

Librarian, Board of Trade

THE section of the Board of Trade that we are concerned with to-night is the overseas side. The Board is divided more or less completely into two—the home side and the overseas side—and the overseas side is the one that, in addition to its other important functions, collects export information. It is, in fact, a large information-collecting machine. There are two main parts of the overseas side—the Export Services Branch and the Branches divided by country, which work in rather a different fashion. The Export Services Branch was known up to a short while ago as the Industries Branch and I hope you will connect the two branches together. The Export Services Branch is a much better title because, in fact, its sole function is to act as the mouthpiece of the Board. It is the place you should go to when you want assistance about export promotion matters. The booklet you have had given to you—*Services to exporters*—gives addresses and telephone numbers, and so on. The Country Branches are groups of people, part of whose job is to collect all the information about one, two or three countries. The Export Services Branch collects all the information about commodities so that we can approach the problem either way.

Now, there are various other parts of the Board of Trade—I just want to mention them briefly and I will return to them later—and of other parts of the Government machine which can help exporters. We have in the Board of Trade the Exhibitions and Fairs Branch—which is responsible for running the British Industries Fair, but also makes available for exporters information about overseas fairs and exhibitions. There is the Foreign and Commonwealth Statistics Branch, which collects foreign statistics and makes them available. H.M. Customs and Excise, which Mr. Maddan mentioned, can play a rather bigger part than I think is readily apparent, because they have a mass of material which can be got relatively easily. The Export Credits Guarantee Department is the Government insurance firm that insures your export goods against certain forms of loss but not against all. I want to pass very hastily over the last one, which is the Export Licensing Branch. Nobody likes export licensing, but for various fairly obvious reasons it is with us. Those are the principal parts of the Government machine which can help.

Returning to the Export Services Branch, it is, as I said, the main channel for outside inquirers. It lives at Lacon House, Theobalds Road, London, W.C.1, and that is the first place you should telephone or call if you want any sort of export information. The Branch collects tariff information and that type of material. There are, in fact, a large number of officers who do nothing but study and give out to inquirers information about the current tariffs of other countries. So that if you want to know about the French tariff you can ask the Branch to tell you exactly what the duties are on any given commodity in the country you hope to export to. That is rather important obviously, because it can completely affect your prospects in a given country. We had inquiries some time ago from a firm which just asked us for agents who would handle their cast-iron drainpipes in France. Before we did anything at all, we looked at the tariff position and it seemed to be all right, but we did note that there was a high internal sales tax in France and, of course, as soon as the manufacturer knew this he realized he had no hope of competing with local French products. We have information on local sales taxes, import duties, and such things as consular invoices and the various fees that you have to pay—peculiar things which will not mean very much to you until you come up against the problem—certificates of origin, regulations about marking and packing goods for export and so on.

A very large and troublesome problem is the various countries' regulations on how and when and where you can import food and drugs. Some countries have very tight regulations. It is no good shipping your goods to Ottawa or Montreal and finding that they will not admit them because you have not labelled them properly. We have information in the same Branch on trade and merchandise marks, regulations about copyright, and, finally, things like taxation of commercial travellers and their samples—what they can take in, and how big their samples can be. Then, there is a lot of information (and we do give a substantial service) on the suitability of foreign agents. A firm may have no suitable agent in a foreign country, and may not wish, or may not be able to afford, to send its own man out there. If the firm will send copies of its catalogues and full details of its products to the Board, the Board will ask its overseas officers to find suitable agents. The agents are given the catalogues and other details so that they are fully informed of the type of work required, and the names of two or three whom the overseas officer considers most suitable are sent home to the firm. The firm can then itself check, through the banks, the financial standing of the agent it selects from the short list ; and it knows that whoever it chooses, he is already able and willing to handle the sale of the products concerned.

Another important thing that the Export Services Branch does is to issue the Special Register Service of Information. I do not know how many of you have seen the Service. It has been going for a very long time, and it is only available to United Kingdom firms. It has at the moment about eight thousand subscribers, and it consists of a whole series of individual sheets, divided into four main groups. The first group covers trade openings and tenders. Our local officer in Buenos Aires sees a published tender for two steam-boats. He sends it to this country ; we advertise it amongst the subscribers to the Register to see if any of them care to tender for that particular order. The next group lists specific inquiries from buyers and agents. A buyer in a foreign country will approach our Trade Commissioner and say, 'Do you know any firm which will sell me so-and-so in the United Kingdom ?' That information also goes out. Then the part that may be of most initial use—at least to general libraries—is the group which gives general economic reports on different countries—e.g., just what the general economic situation is in Chile at this moment. These go out for a range of something like eighty different countries. The final group again is the sort of thing Mr. Maddan mentioned that the United States Department of Commerce issues—information on markets for particular commodities—just whether pharmaceuticals are a good 'sell' at the moment in Mexico and that sort of thing. Those are the four main groups. You can get the whole service for £2 10*s*. a year ; or you can select any one of five hundred different commodities you are interested in ; or you can select only those reports dealing with a particular country.

There are just two or three other services of the Export Services Branch that I would like to mention. There is a good collection of trade catalogues, both English and foreign, though the English ones are not available for inspection because there are many which are confidential to the Board. They are all used, however, by the Board's staff in advising buyers of the most likely manufacturer to approach for the goods he wants, and the foreign catalogues are open for public inspection. Finally, there is an Overseas Directories Library. This is a public service and there is a small reading room where anyone can go and consult such overseas directories as we have. Typewriters are available if you have extensive lists to compile. At the moment, the collection is a little thin, but we hope that in the next few months we shall have improved it very considerably. It adds a third collection of foreign directories to the other two collections in London—at the Guildhall Library and at Westminster Public Library. The directories are very useful if you are compiling mailing lists of people to circularize for an advertising campaign.

You can, of course, visit the Export Services Branch in Lacon House to consult the people there, but I think it is important to say that the same approach can be made by letter, by telephone, or through our Regional Offices in the eleven main provincial centres in the country. In each regional office of the Board of Trade there is a special export section, and anyone in the provinces can use these services just as easily as people in London. We are rather anxious to make that quite plain, because not everyone realizes that the smallish Board of Trade district office in, shall we say, Sheffield, has access easily and very freely to the total resources we have both in London and abroad.

I said that the Country Branches had a great deal of information about commercial and economic conditions in a single country. One of the things they do is to interview and meet the business-man who wants to visit a particular country and they can give him a general picture of the conditions he is likely to meet. They also meet foreign business-men coming over here, such as foreign buyers, and acquaint them with the likely prospects of buying British goods. It is nearly as important to get foreign buyers to come to this country as it is to persuade our own firms to send agents abroad.

The next main field is the market research and statistical material proper. Our statistics library, which is also in Lacon House, Theobalds Road, is open for public use. It is not very well known, but for a very long time indeed it has made its services available to anyone who cares to write in, to telephone or to come in person. The collection of Commonwealth and foreign statistics covers quite literally everything we can trace that is likely to be useful. In addition to trade returns, it covers censuses of production, and distribution, statistics of retail trade, and general statistical abstracts. The service is backed up by qualified statisticians, so that if you make an inquiry the answer to which is not obvious from the published returns, you can get someone who works full-time on the material to give you a proper interpretation. One word of warning—no statistics themselves are given over the telephone. The main reason for that is, I think, the obvious one of the possibility of error creeping in. This rule is quite rigidly applied. Another more practical difficulty is that inquirers frequently make broad inquiries—such as for figures for canal traffic in France—without realizing that there are about twelve pages of figures on this subject. Questions ought to be quite specific. So many of the questions that we get are not at all specific and we can only tell inquirers to come in and see what is available. In the type of case quoted, the inquiry usually boils down to something much smaller, because what is wanted is, say, the number of small cargo boats passing a given point in a given month or something of that nature.

For statistics there is another very important source. In a sense, it is very much more important than our own Foreign Statistics Library and Mr. Maddan just mentioned it. This is H.M. Customs and Excise. You will know that the monthly publication *Trade and Navigation Accounts* gives only a partial commodity break-down of U.K. imports and export figures, and that only the main countries are listed under each commodity. The full figures are given one to two years later in the *Annual Statement of Trade* and will tell you just how many radio sets were exported into British Guiana or France, if any. But in between times you can get these very detailed figures from H.M. Customs and Excise. They produce every month something like 2,800 tabulations of the figures, broken right down into much more detail even than is published in the *Annual Statement of Trade*, and you can subscribe to any particular series of figures your firm is interested in. The approach should be to H.M. Customs and Excise direct because they will give you the cost of the service which is based on the cost of the clerical labour required to abstract the figures. You will not, for instance, find in any of the published returns the number of pencils we imported from Germany, but the Customs, because the goods have to be described quite precisely on the customs entry form, have all this information on punched cards and can produce it more or less at the cost of printing. The Board of

Trade does, in fact, get all sheets each month for internal purposes, but we leave Customs and Excise to make them available to the public.

I do not want to say much about the Export Credits Guarantee Department, because you have the very excellent leaflet which they issue. It is the public department which insures exporters against certain risks—principally the risks of a country, as mentioned by Mr. Maddan, suddenly stopping export of foreign earnings, nationalizing, and that sort of thing. You have the address in the leaflet. There are, again, Export Credits Guarantee officers in nearly all the provincial centres and local firms can approach them and get a very quick service on fixing policies and telling how much they are going to cost.

I mentioned the Export Licensing Branch earlier—I don't know if I can really answer any questions about when 'strategic good' is a 'strategic good' and when it is not. But the full lists of such goods as cannot be exported are contained in the Export Control Orders ; and it is such a highly intricate business, dealing with both exchange control, the ban on exporting certain goods to China and the strategic goods control generally, that questions can only be settled by talking to someone in the Export Licensing Branch.

Now, I think I ought to explain to you how the Board of Trade gets all this information which is available. First of all, in the Commonwealth we have thirty-five Trade Commissioners whose job, very largely, is to collect information and send it back to the Board of Trade. They are paralleled in some of the Colonies by United Kingdom Trade Correspondents, and in foreign countries by Commercial Officers who all work to the Board of Trade. So we have three hundred listening posts in foreign countries collecting information on matters of interest to exporters. They send in both regular and *ad hoc* reports ; they nearly all, for instance, produce a monthly report on the general economic state of the country. If they pick up a whisper that somebody is looking for ten thousand pairs of galoshes, they will pass it back and we will do our best to see that somebody from this country gets in the first quotation. That is the main source. There is very little delay in it, and, of course, we use those officers to find out what the market is for any exporter who has material he wants to export. We can and do put out individual inquiries on behalf of individual firms. You can also, if you like to use the addresses which are published in the *Board of Trade Journal*, write direct to the officer in the country concerned. I do not know that it is any faster doing that because, although he will send you the information (we always get a copy of what he sends), we can quite often answer the inquiry from the material we have collected in this country from previous investigations.

We do also get a great amount of information—and I want to emphasize this—out of trade periodicals, both English and foreign—English, for the lists of people who might supply goods for a given foreign trade inquiry, and from the foreign periodicals, information about what sort of market there is. Illustrated advertisements are very useful in giving some idea of the design requirements of a market. It is no good putting your goods out in a brown paper packet if all competing products are sold in transparent wrappings. You have to compete with the local product, and advertisements in the trade Press are extremely valuable. I was a little dubious some twelve months ago at being asked to provide for one of our officers an American periodical on fishing. I did not know whether it was line and rod fishing, whether he was hoping to have a good vacation in America, or quite what—so I asked what he wanted it for. He explained to me that this periodical was *the* best source of information about the market for trawler gear and heavy fishing gear in the United States and, since our exports at the moment were three million dollars worth a year, £3 a year for a periodical to keep him in touch with the market was a very small amount to pay. Obviously, we provided him with the periodical. But that is the sort of periodical that is immensely valuable to the man who is trying to guide our exports and help our exporters, in telling them just what sort of possibilities there are. We also get official gazettes from practically every country in the world. These, just in passing, usually reproduce the text of laws and decrees on commerce, customs regulations, licences and that sort of material. Practically all this is cut up and indexed into files by commodities and by subjects, so that we can get at it easily.

Of course, we do buy books, but books on the whole are more useful for long-term surveys. I should like to mention one particular series that is being published at the moment—the Reports of the General Survey Missions of the International Bank for Reconstruction and Development. Ten have been done so far for different countries. The function of these reports is to lay down an economic plan for the next ten or fifteen years, and our main interest in these is to see that English consultants and such people as construction engineers get in on the ground floor of any development projects. We have sent out a special register notice giving a list of all the Reports that have been published, and we did persuade a dozen or fifteen public libraries in the country to put these on their shelves so that we could refer people to them. That is one of the purposes we use books for, but on the whole, of course, they are very much more out of date and only useful for giving long-term trends.

Now, how do we make this information available, if you do not want to call ? First of all, as I mentioned, you can telephone or you can write a letter either to headquarters or to regional offices. Then we do publish a mass of this material in our various publications, probably much more than is generally realized. The *Board of Trade Journal* is our principal medium for broadcasting information and it contains a vast amount. It is also our principal channel for drawing people's attention to our other publications. In fact, very many of these special register circulars are mentioned by title each week, so that you can always hear about the odd one of these if you do not subscribe to the whole service. Then we publish *Overseas economic surveys*, which are country-by-country surveys of some thirty or forty countries. Each is written by the commercial officer on the spot. There are also the smaller ones of the same type, the *Reviews* *of commercial conditions*, for a few of the smaller countries. The Special Register Service I have mentioned.

The other series which is not put on sale, but which is given away, is called the *Hints to business men* series. It is a series of twenty-page pamphlets which we give away to any business-man we can find who is going to visit one of these countries. It gives him some general idea of what conditions he is likely to meet, what the local taxes are and whether he has to get a licence to get in and a licence to get out, and so on. They have many bits of useful information and you can, in fact, if you press the Board of Trade hard enough, get a set for your library, but they are really designed to give to the business-man on his way abroad.

In addition to these regular series, we put out quite a number of *ad hoc* reports on different subjects. A recent one was the Report of a Trade Mission, called *Markets in the Caribbean.* A group of business-men went there early this year and they have now reported on trade possibilities. It is full of information for anyone who wants to export goods to the area. Some of these are reports of industrial missions looking into the sales of particular products, like the report of the Agricultural Machinery Marketing Mission to Canada of two or three years ago.

I have mentioned the regular statistical publications, *Trade and Navigation Accounts* and *Annual Statement of Trade ;* there are also two others with rather different functions. The monthly *Report on overseas trade* shows U.K. imports and exports under wide commodity groupings to and from the main blocks of foreign countries, such as Dollar Area, Sterling Area, U.S.A., Canada, Sterling members of the Commonwealth, Colonies, etc. ; and the annual volume *Trade with selected countries* is designed as an advanced but briefer issue of the *Annual Statement of Trade*, Volume 4, and shows the trade of the U.K. with some seventy foreign and Commonwealth countries broken down into the principal commodity groupings.

One other publication you may not have heard of, but which I think the serious exporter ought to have available, is the *International Customs Journal.* It is not a publication of the Board of Trade, although we in fact receive the initial stock in this country. The International Customs Bureau is a long-established organization whose function is to translate into five languages the customs tariffs of all countries. The five languages they cover are English, Spanish, French, Italian and German. We get 250 copies of each of the English translations of any foreign tariffs. We sell these to any who want them through Eyre & Spottiswoode. We use most of them, of course, internally ourselves ; but anyone who wants either individual copies or a set can get them through Eyre & Spottiswoode, and they do form a very valuable collection of translations of tariffs. Naturally, they are not right up to date, but if you are interested in just one or two countries you can always bring the section you are interested in up to date by consulting our master copy at headquarters, and after that keep it up to date by such changes as are notified in the *Board of Trade Journal.* It is worth remembering that it may save a great deal of trouble to have an authoritative translation of the Portuguese lists of pharmaceuticals, or something like that.

There is only one other body I ought to mention and that is the Dollar Exports Council. Formerly the Dollar Exports Board, it now works as part of the Federation of British Industries. Its function is to publicize methods of exporting to Canada and America. It has also put out a series of valuable publications on some particular problems and markets of the dollar area. The Council is in the process of opening centres in some United States cities to act as advisers to business-men who are interested in British goods.

I hope that this brief account has been enough to indicate what types of information are available from the Board of Trade ; and I would like to repeat that inquiries in all forms are most welcome. We can only give the information we have if you will approach us with your individual problem.

Discussion

DR. R. M. KLAAR (Petrocarbon, Ltd.) said that she was once on the mailing list for *Hints to business men*, but no longer received all copies automatically. She noted that the Board of Trade had announced that the series, *Reviews of commercial conditions*, was to be discontinued. Several issues had since been published—how was this to be explained ? Dr. Klaar further remarked, with regard to the *Overseas economic surveys*, that the time-lag was bad.

MR. MALLABER replied that *Reviews of commercial conditions* were immediate post-war emergency issues to be replaced later by *Overseas economic surveys*. A few issues were still appearing, but the series would eventually die.

Overseas economic surveys were inclined to date a little, but a very large part of the basic information was still current at the time of publication.

Hints for business men was not a series intended to be sent out widely. It was not of such general use as the *Overseas economic surveys*. However, there *was* a mailing list for it, which was in process of revision.

MR. B. C. HARFORD (Commonwealth Bank of Australia) wanted to hear more of the Board of Trade's Register of Agents.

MR. MALLABER said the Board of Trade would recommend the suitability of agents (not their commercial standing). Local Trade Commissioners would submit names on request.

MR. G. P. HENDERSON (Guildhall Library) said that the overseas directories at the Guildhall Library now included most countries' equivalents of the *Stock exchange year book* : also, that editions of overseas directories immediately prior to those in the main stock were being kept to form a loan collection.

THE CHAIRMAN remarked that Aslib was an important source of information, since 60 per cent of its members were commercial organizations. Aslib's position as a catalyst was very useful sometimes !

MR. L. WILSON (Director of Aslib) mentioned a meeting of the Aslib Economic Group to be held at Goldsmiths Hall on 2nd December, 1953, on ' Statistics : their compilation, use and application '. This group particularly was a source of valuable information.

MR. PLUMBLY (The General Electric Co., Ltd.) said that he had the impression that in the annual issue of *Trade and Navigation Accounts* the value was nullified by a two-year time-lag ! Export managers wanted *up-to-date* information. The (monthly ?) breakdown of the *Trade and Navigation Accounts* was, however, very useful. Could Mr. Mallaber account for the delay ?

MR. MALLABER replied that the figures *were* available from H.M. Customs on the 17th of every month for the previous month.

MR. K. B. SHAW (Board of Trade) said that, in fact, the monthly breakdown of figures for *Trade and Navigation Accounts was* ready the next month as Mr. Mallaber had said. The annual version was, of course, more difficult to prepare and was not intended for immediate use. Its purpose was to give final detailed figures, on which analysis of trade might be based

The Board of Trade exchanged figures with all countries willing to do so.

H.M. Customs would answer *ad hoc* inquiries from the public.

MR. L. W. JAMES (British Iron and Steel Federation) said that, admittedly, the annual Trade and Navigation accounts were somewhat belated in their publication, but from his knowledge of iron and steel statistics he had found that the Board of Trade and Customs and Excise were generally in advance with published information compared with that obtainable from other countries.

MR. MADDAN noted that in the U.S. Embassy Commercial Library U.S. statistics could be seen, free of charge, similar in content and scope to those U.K. statistics for which payment had to be made to the Customs. Speed before accuracy !

MR. MALLABER pointed out that U.K. figures were larger than those for many other countries. The U.S. annual report last appeared in 1946.

MR. B. C. HARFORD (Commonwealth Bank of Australia) said that his organization had found the Trade and Navigation figures useful in the following way ; all the exports from the United Kingdom to Australia must later appear as Australian imports and by taking the United Kingdom figure it was possible to gain some idea *in advance* of what the Australian imports were likely to be, after making allowance for the time in transport. Mr. Harford thought that people possibly expected too much from statistics of this kind, which should, he thought, be used rather to ascertain broad trends.

MR. B. N. P. HUTCHESSON (The Distillers Co , Ltd., Research and Development Department) said there was a definite need and place for speedily published information which was substantially correct, i.e. in which the orders of magnitude, but not necessarily all details, were accurate and which could later be confirmed in detail In the chemical field the monthly 'preliminary' production sheets of the U.S. Tariff Commission, the annual totals of which were confirmed about six months after the end of the year, are a good example. The annual productions arrived at by adding the monthly figures differed usually from those published in the confirmatory booklet, but the differences were usually small enough not to be important and were far outweighed by the utility of the up-to-date figures.

Information published by U.S. Government Departments was well known in this country through the excellent monthly catalogue of the U.S. Government Printing Office. Similar catalogues were published at less frequent intervals by the Dominion equivalents of H.M.S.O. All these were easy to peruse, being in English.

Foreign catalogues were less easy to trace and much less easy to deal with. Had the Board of Trade with its interest in publicizing the English translations of foreign tariffs ever considered taking the foreign language equivalents of the H.M.S.O. monthly or annual catalogue, translating them and selling the translations ? The Distillers Co., Ltd., would certainly consider placing an order for the main Continental ones.

MR. MALLABER said that Mr. Hutchesson had introduced a new field—that of production statistics—hardly touched on by the papers and discussion. In the U.K. many of the economically most important industries published their own production statistics. Production statistics were included in the *Monthly Digest of Statistics* and the *Annual Abstract of Statistics*. The Board of Trade Statistics Library did, in fact, take a wide range of publications giving foreign production statistics but did not try to be complete for any serials issued more frequently than annually[1].

The Board of Trade Library collected some foreign equivalents of H.M.S.O. catalogues (though very few were issued on the Continent) and would try to obtain and pass on bibliographical information on statistical series of foreign countries if inquiries were made by letter.

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[1] A monthly list of serial titles newly added to the library and of new editions of statistical annuals received is now (March, 1954) available, but only on a restricted circulation to organizations having a real need for such a list.

THE CHAIRMAN pointed out that there were various commercial services which provide information, such as McGraw Hill, trade associations, advertising agencies

DR. R. M. KLAAR mentioned that the Sulphur Exploration Syndicate had recently started a quarterly bulletin giving detailed information on the sulphur industry. It was, however, very expensive.

MR MALLABER said that some of these private market reports were good but expensive. There was, for example, Dudley Windell's *Cotton Trade Review* which was a weekly of anything from five to twenty foolscap pages, stencilled, and cost £25 per annum subscription.

MR. MADDAN said he believed that Aslib had a list of trade associations.

MRS. M. E MACKIEWICZ (Information Officer, Aslib) replied that Aslib had no such complete list, but that the Department of Scientific and Industrial Research had been carrying out investigations. 5,000 trade associations had been circularized for information and a list had been compiled of those trade associations having technical or commercial information.

MR. MALLABER remarked that the information had been collected from the technical aspect only.

MRS. M. I. WEBB (Chartered Institute of Secretaries) asked whether there was not a small Government publication which covered trade associations.

MR. MALLABER said that the Export Services Branch published a list of *Some Trade Associations and Export Groups* which was classified under broad subject headings.

MRS. M. I. WEBB (Chartered Institute of Secretaries) said that she believed that the publication to which she had referred was called *A directory of employers' and employees' associations*. [Full title · Ministry of Labour and National Service : *Directory of Employers' Associations, Trade Unions, Joint Organizations, etc., etc.*]

MR. MALLABER remarked that the above related only to trade union organizations.

THE CHAIRMAN then closed the meeting with thanks to the speakers.

INSURANCE OF SPECIAL LIBRARIES

By John M. Hiron, F.C.I.I.

London Fire and Accident Superintendent of the Beacon Insurance Co., Ltd.

London, 24th November, 1953

Summary

MR. HIRON first explained the theory of insurance as the transference of the loss of the individual to the pockets of the many by means of the operation of a common fund or pool operated by insurance companies and underwriters. Interesting historical facts were explained and the strength of the British insurance market was emphasized by the statement that one of the largest risks in the world, the liner *United States*, is insured for £11,000,000, more than half of which is covered in the London market.

Objections to the insurance of libraries were mentioned in detail, but all were answered by the fact that insurance covers small, or 'partial', claims, and, indeed, the seemingly impossible catastrophe does sometimes happen. Furthermore, the fact that libraries are, in insurance parlance, 'good risks' is reflected in the very low rates of premium that are charged for the cover provided.

Next, the three fundamental principles of insurance, i.e. indemnity, insurable interest and good faith, were explained at length, and it is only possible to refer here to a few of the points made.

An insurance policy is a contract of indemnity, which means that in the event of loss or damage the insured is entitled to receive the value of his actual loss within the limits of the sum insured. The insured must not receive more than an indemnity—he must not make a profit out of his loss.

In order to preserve the principle of indemnity, it follows that the insured must have had financial interest in the property insured, i.e. insurable interest, which may also be defined as the right to insure.

Ordinary commercial contracts are governed by the legal principle of *caveat emptor*—let the buyer beware—but insurance contracts are based on the principle of *uberrima fides*—utmost good faith. This principle must be observed by both parties. The proposer for an insurance must disclose all facts material to the risk to be insured, and all his statements must be true. If any such facts are not disclosed the proposer is guilty of concealment and the policy is voidable.

A policy of insurance is evidence of the existence of a contract between the insured and the insurance company or underwriter. Policy phraseology should not be a stumbling-block to the person of average intelligence, and, generally speaking, the policy conditions are just a statement of the Law of Insurance slightly modified in some circumstances to meet

special requirements. Therefore, a policy without printed conditions will still be subject to Insurance Common Law principles.

Libraries being essential to the well-ordered life of a community, it is desirable that, apart from taking all reasonable precautions against loss or damage, librarians and governing bodies should take all possible steps to reinstate their service as quickly as possible to its full extent without undue concern as to ways and means. Therefore, well-arranged and adequate insurance cover is essential. Governing bodies may well look to their librarians to keep them fully informed about the risks which are run and the possibilities of insuring against such risks. This can probably best be done by the compilation of a report prepared in collaboration with an expert insurance official or broker.

Mr. Hiron then proceeded to refer to some practical points arising out of his preamble, some of which are referred to below. The application of the principle of indemnity to buildings is not difficult. This may be the cost to replace, rebuild or repair, not forgetting incidentals such as architects' and consulting surveyors' fees necessarily incurred in the supervising of repair work (but not the costs of formulating a claim), the cost of removal of debris and clearing of the site preparatory to the commencement of repair or rebuilding work.

Office furniture, machinery and typewriters are dealt with on the basis of the cost to replace the articles with ones in a similar condition or the cost to repair and repolish ; unused stationery on the basis of the cost to replace.

Records, which are particularly important to libraries, are dealt with on the cost to replace, i.e. cost of material plus cost of labour to re-write, re-compile and sort. It was mentioned that every librarian should give particular attention to the insurance value of records ; a little research and thought will produce a surprisingly high figure. If catalogue records are not damaged, there may well be a claim for loss due to damage to books rendering a revision of the catalogue necessary.

The cost of replacing books will vary through many factors, such as availability, obsolescence and depreciation. Circulation statistics will indicate which classes of books are in greatest demand, with consequent effect upon their value due to wear and tear.

Many books, still in good physical condition, are outdated or superseded by better or more comprehensive works. This is true not only in the case of textbooks, law books or scientific treatises, but also 'ordinary' library material like history, war books and, most of all, popular fiction. Demands cease, tastes change, many books become deadwood on the library shelves. Again, only each librarian can know how long individual types of books will be in demand.

For insurance purposes, books which librarians would not bother to replace in case of loss should be either eliminated from the cover or be insured for a nominal sum. Books which are subject to much wear and tear should be insured with a substantial deduction for depreciation. On the other hand, appreciation should be considered for books whose value has considerably increased in the course of years. No fixed percentages for any of these procedures can be given, but librarians themselves can arrive at fairly accurate estimates, as only they can know their collections.

Some of the most important factors influencing the valuation of individual library collections are :

(1) Type of library. The more specialized the book collection, the easier its valuation.

(2) Life expectancy of books. How much use, in terms of years, is made of a book ?

(3) Rate of book growth. Acquisition in relation to discarding varies between individual libraries. A perpetual inventory is a great aid to accurate evaluation. Weeding, discarding, etc., at irregular intervals may mean too high valuation and, hence, insurance cost.

(4) Binding and mending. A good state of repair throughout the book collection means higher values and less depreciation.

The accession books, or records, are of great value not only when agreeing a figure for insurance but also as a reference when compiling a claim, and, therefore, they should not be kept unprotected in the library but in a fireproof cabinet, safe or compartment. Alternatively, when the library is closed, they should be kept in an entirely different building.

Some special points

The policy will usually contain a figure representing a limit on the value of any one book. It does not mean that books cannot be insured for a greater figure, but the insurers should be given details of any such books.

Rare books and manuscripts

Should be professionally valued and the valuation recorded by the insurers as evidence of value in the event of loss.

Loss of part of a set of books

Legal or other reference books present some difficulties and the claim, if it is impossible to purchase parts to replace damaged ones, will be the cost of replacement of the set less the amount realized for the salvage and less an allowance for 'betterment' if the new set is in better condition than the damaged set, unless the policy contains any restriction on this type of claim.

Perils insured

The speaker mentioned that, although he had talked of 'Fire', it is always understood this includes lightning and fire damage following explosion and damage by water and chemicals used in extinguishing fire, but many other risks can be insured. The cover is seldom 'All Risks', except in respect of very valuable works and manuscripts.

Examples of extended cover are :

Explosion concussion damage ;
Aircraft or articles dropped therefrom ;
Storm, tempest or flood ;
Bursting or overflowing of water tanks and heating apparatus ;
Sprinkler leakage ;
Riots and civil commotion ;
Impact damage by horses, vehicles or cattle.

Extensions

Also policies can be extended to cover :

Insurance of rent ;
Standing charges, rates, salaries ;
Cost of temporary premises.
'All other contents' wording to include effects of the staff left in the office.
Wording to include books, etc., not the property of the insured but held on loan from other libraries. If books are taken away cover may be desirable at address of borrowers, book-binders, etc.
A discount of 5 per cent may be given for an agreement to insure for three years.

Burglary insurance

Cover will follow very closely the fire insurance, but larceny will not be covered, except under an 'All Risks' policy.

Transit risks

If books are sent on a journey to and from borrower, etc., they should be insured—usually 'All Risks'.

Cash in safe and cash in transit

Cash for salaries from bank.

Plate glass breakage

Show cases, cabinets, etc., stained glass windows.

Lifts and boiler

Inspection and explosion.

Third party liabilities

On or about the premises and when employees are out on library business. A really adequate indemnity (sum insured) is essential.

Employers' liability

Legal liability cover in respect of accidents to employees due to negligence of fellow employees or defects in the premises, etc.

Fidelity bonds

Employees handling cash should be covered against dishonesty and losses due to failure in carrying out duties.

Life assurance

The Life Assurance Department can provide a pension scheme for staffs.

Regarding sums insured, it is realized that in a few cases perfect records may exist which make the task of fixing the correct figure an easy one, but, generally speaking, a reasonable attempt is adequate.

Insurers will usually be content to reach a settlement agreeable to all concerned, provided there is evidence of a reasonable attempt to keep the sums insured in line with actual values, but payments will always be limited to the sum insured.

Mr. Hiron mentioned that in preparing his notes he had found a great deal of help in the book *Insurance of libraries* by Dorothea M. Singer, published in 1946 by the American Library Association of Chicago.

Summary

Almost any risk which is not a certainty can be insured at a premium. Private enterprise and competition can, and will, give service so long as it is allowed to do so. British insurance is still a power in the world and Mr. Hiron expressed the hope that it might be allowed to continue to serve the public untrammelled by political interference in its important job of spreading the losses of the few among the many.

After the talk Mr. Hiron dealt with quite a number of questions, some of which are summarized below.

MR. K. HOWARD DRAKE (Chairman) asked to what extent the principle of average was applied in assessing a claim for loss by fire ?

As insurances of the type discussed are not usually 'subject to average', claims will be paid up to but not exceeding the sum insured. If, however, the insurance is 'subject to average', and if the collective value of the property insured exceeds the sum insured, the insurer bears only a proportionate share of the claim, the remainder being borne by the insured. In the event of a total loss, 'average' is, in effect, automatic because the sum insured is the limit of liability, the remainder of the loss falling upon the insured.

The Director of Aslib asked whether a claim for, say, £1,000 would be fully met if, for instance, £500 were with one company and £500 with another ?

This is governed by the contribution condition of the policy which is based on Common Law, and each insurer would bear its proportion of the loss. In the case exampled it would be 50 per cent each.

MR. H. K ELLIOTT (Lange, Maxwell & Springer, Ltd.) was interested to hear what valuation should be put on sets of periodicals for insurance purposes. Scientific periodicals rapidly went out of print and one missing copy could be a very serious loss. How should one insure against this ?

MR. HIRON suggested that notice must be taken of the market value, and in this particular instance a careful watch would have to be kept on movements of values upwards and downwards.

MR. C. W. COUCH (Robt. Bradford & Co., Ltd., Insurance Brokers, and Simpkins Insurance Services) advised that when effecting an insurance it was desirable in the case of libraries to consider arranging this on a replacement value basis, based on a proper inventory. This inventory could be brought up to date, say, every three years, and insurers may accept such an inventory provided, of course, that the insured was prepared to pay premium based on the total values revealed in the inventory. Any really valuable works should have a special sum set on them.

MR. HIRON pointed out that in any case such an inventory is invaluable not only for fixing a sum insured, but also as evidence of value in the event of a claim.

MRS. M. E. MACKIEWICZ (Aslib Information Officer) suggested that, in assessing the cost of a long run of periodicals, one might base the replacement value on the cost of photo-copying the series.

MRS. M. MORGAN (National Institute of Oceanography) raised the question of valuation of reprints and the difficulty of valuing reports of expeditions. These reports of expeditions are now out of print and not in general demand by the ordinary public. Yet their value would be difficult to assess by a bookseller as they are in daily use by the scientific staff at the Institute.

MR. HIRON. It is not the function of an insurer to value goods to be insured, and the insured should present their ideas of valuation for approval or comment. When there is any doubt it is better to get an understanding before a loss, that is, whilst the articles still exist !

MR. ELLIOTT agreed the extreme difficulty of setting a price which was at once reasonable to insurer and insured.

MISS J. M. BROWN pointed out that there was the matter of appreciation (as well as depreciation already mentioned). Sometimes an old edition had a greater value than a later one, from the point of view of the user ; sometimes it was necessary to have copies of all editions for comparison, etc. How could one reach a valuation ?

MR. HIRON. Appreciation should certainly be taken into account. It is necessary to watch values at sales and when there is any doubt a professional valuation should be obtained.

MR. COUCH emphasized that the question of the valuation or inventory and the figures to be used for items covered by the inventory was a problem for the insured. Insurers would not be prepared to suggest values, but there was little doubt that they would agree any reasonable figure and the suggested triennial inventory was a good method of keeping the library records up to date from the point of view of insurance.

MR. R. G. GRIFFIN (Brewing Industry Research Foundation) asked how one could insure books which were at the binders. Binders, he said, often did not insure material in their hands and the value of this material, of course, fluctuated considerably.

MR. HIRON. Insurers will usually grant an extension of the policy to cover books at the premises of any bookbinders, including whilst in transit to and from.

MR. YOUNG (N.W. Polytechnic) asked about different forms of accessions registers, as check lists from which claims were to be made. Many modern ones were in the form of card indexes. Were these good or bad lists from the insurers' point of view ?

MR. HIRON said that the form in which the records were kept did not matter so long as they were kept in a fireproof container or away from the library when closed.

MISS M. D. GAUNTLETT (Kodak, Ltd., Research Library) said that Kodak Library copied its catalogue and accessions register on microfilm and that these copies were stored in a safe place—not in the library itself. Would such copies be an acceptable record to insurers ?

In confirming this view, Mr. Hiron expressed satisfaction with the modern method of preserving records by means of microfilm, and that such films would be invaluable in the event of a serious fire loss.

The Director asked how one insured against copyright infringement.

MR. HIRON. This is a specialized form of insurance which could be arranged, but each case would have to be considered and rated on its own merits.

THE WORK OF THE T.I.D.U.

By E. G. Hill, B.Sc.

Department of Scientific and Industrial Research

Paper presented at a joint meeting of Aslib Midlands Branch and the Coventry Engineering Society, Coventry, 13th October, 1953

I AM very glad of this opportunity of telling you something about the work of the Technical Information and Documents Unit, because I am sure that this organization has something to offer both the engineer and the librarian. Scientists and engineers often say that they have not time to read, while librarians are just as certain that the scientist does not know how to read. Doubtless there is some truth in both these generalizations. However, it is also true that T.I.D.U. exists primarily to help the scientist and engineer, and one of the ways it does this is to help them to see the things they ought to read.

Essentially, T.I.D.U. is just another library. We like to think of it as a militant library—a library which tries to sell its wares to the ultimate consumer, instead of being merely content to remain a collection of documents. We believe then that there is no virtue in mere accumulations of papers and reports. The hoard must be disgorged to engineers and scientists if T.I.D.U. is to fulfil its rightful destiny. T.I.D.U. does this by maintaining live contacts with engineers and it tries to supply them with the information they need without waiting for them to make the first approach.

First and foremost, T.I.D.U., or the Technical Information and Document Unit, is part of the D.S.I.R. Now, as most people know, the D.S.I.R. is the Government organization which was set up in 1916 to promote and organize scientific research, with a view especially to its application to trade and industry. The Department's activities can be summarized in three main headings :

(1) Research in the national interest for the benefit of the community as a whole and to meet the requirements of Government departments.

(2) The encouragement of research and the application of scientific knowledge in industry.

(3) The encouragement of fundamental research at universities and elsewhere, and the maintenance of an adequate supply of trained research workers for laboratories of all kinds.

With the exception of medicine and agriculture, the D.S.I.R. embraces in its scope all branches of natural science and their application to industrial processes and the T.I.D.U. activities cover roughly the same field.

I want to emphasize the ways in which T.I.D.U. can help industry and the methods it uses. This will, I think, be of special interest to engineers, and our Aslib friends may not be too familiar with this aspect of our work. Before I can do this I shall have to deal as briefly as possible with T.I.D.U.s sources of information. They comprise, firstly, unpublished documents ; secondly, published material ; thirdly, a group which I shall label for convenience personal contacts ; and, fourthly, the Department's overseas representatives.

First, then, unpublished documents. There has been a regrettable tendency to regard this type of material as the shady half-brother of the blue-blooded published paper. Twenty years ago there were few of these so-called technical reports outside the confines of the industrial research laboratory. Since then, a tremendous amount of effort has been devoted to scientific research and the State is now one of the most important patrons of the art. Because of this rapid and enormous growth in the output of scientific work, it has become increasingly important for scientists working in similar fields to know as soon as possible the results obtained by their colleagues. Unfortunately, the facilities for the publication of scientific research results have not kept pace with the demand and this has stimulated the need for an interim stage between the research work and the published paper. This need has been met by the unpublished technical report.

The basis of T.I.D.U.s collection of unpublished documents is undoubtedly the material obtained from ex-enemy countries at the end of the last war. This material, mainly of German origin, but with a substantial Japanese contribution, was sifted and the papers of industrial significance were collected in one place in the Board of Trade which was named the Technical Information and Documents Unit. This unit was charged with the responsibility of cataloguing this material and making it available to British industry. The unit was transferred about two years ago to D.S.I.R. and we inherited the name. How much of this material do we possess ? Well, we hold about 150,000 individual documents in a wide variety of shapes and sizes. Some of them run to about ten volumes. Is it still of value so many years after the war ? I think it is. There has been no significant drop in the number of inquiries in which these documents are consulted. This is admittedly only a quantitative assessment. For a real assessment we have to rely on the reactions of the users and I can assure you that the years have not dulled the warmth of their appreciation. Incidentally, our own German documents are supplemented by the ones the Americans collected. The originals are held by the Office of Technical Services in Washington, but an appreciable proportion of these documents are available in microfilm form at T.I.D.U. When the supplies of German documents dried up, the O.T.S. decided to make available to Europe the results of U.S. Government-sponsored research. The U.S. Government is spending about $2.5 billion per annum on research which is equivalent to about 60 per cent of total U.S. expenditure on research and development. A large portion of this work results in reports which are of industrial and non-military significance derived from Navy, Army and Air Force research. This work is often carried out at U.S. engineering schools. The research reports are screened by the O.T.S. and are issued as P.B. reports. These P.B. reports cover an immense range of subjects and they vary from a complete investigation of, say, the properties of a new titanium alloy and its possible uses, to the smaller one-sheet type of paper which can be regarded as the useful hint or tip. For example, quite recently I came across a description of a new method of polishing single crystals for optical applications. It was obviously based on one of the inspirations which only sheer genius can produce. The report had been written by a technical sergeant in the U.S. Navy. He had discovered that the judicious application of a lathered shaving brush to a crystal produced a better finish than conventional methods. I was even more surprised to read that this super-smooth finish was obtained only with one particular brand of shaving soap. (The whole system was described in detail, even the design of tap used to produce the lather.) You may like to know that this technique actually works and modified versions of it are being used now, here and in the States. The availability and importance of Technical Reports, and especially the American material, is dealt with in some detail in *Aslib Proceedings*, Vol. 5, No. 4, and in *Journal of Documentation*, Vol. 9, No. 4. Now, T.I.D.U. holds a complete card index of all these American P.B. reports and we have a representative collection of the actual reports in mimeograph or microfilm form. Other reports can be obtained from Washington, and T.I.D.U. will supply copies of them at nominal charges to interested people.

American reports, other than those issued by the O.T.S., are also available. The more prominent of these are the N.A.C.A. Technical Notes which have proved to be very useful to industry, and selected items from the wide range of material issued by the Atomic Energy Commission. Rather less comprehensive, but of considerable practical interest, are those reports received through the Questions and Answer Service of the O.T.S. Finally, digests of articles in American technical journals are available mainly to trade associations.

In addition to the German and American papers, we hold copies of unclassified research reports issued by various Government research establishments—for instance the Atomic Energy Research Establishment. These, too, are available to interested organizations.

To return to the idea of a militant library, I must digress a little. We want people to know about these papers and to make use of them. We tell people about them in two ways. Firstly, we tell people that these documents exist, by mentioning them in some of our publications, at exhibitions and so on ; secondly, we make a point of telling specifically interested people about them. We have a list of about 1,400 people, industrial firms, trade associations, development associations and the like who have given us a list of the things in which they are interested. These interests are coded and each report we receive is also coded in the same way. When two codes coincide a summary of newly received documents is sent to the individuals concerned. The person receiving the summary is then at liberty to borrow or purchase a copy of the document.

Before leaving the subject of unpublished documents, I must mention university theses. All these have two things in common, they are difficult to obtain and even more difficult to discover. However, Aslib has recognized the difficulties of this task and has recently published a book which covers most of the current U.K. university theses. I hope it will be possible to keep it up to date.

Theses are normally available for inspection in the university of origin and they can sometimes be borrowed. It is safe to assume that no universally applicable procedure exists for tapping this source of information. My own feeling is that it is often easier and quicker to locate the men who are known to be working in particular fields as a first step. These people are usually glad to provide information on the topics concerned and, when necessary, they would refer inquirers to relevant theses. If this procedure is adopted, T.I.D.U. could help to make the first contacts.

Foreign theses are even more difficult to locate if they are not mentioned in published papers. It is worth remembering that guides are available for American and German university theses. These now cover periods of twenty and nine years respectively.[1]

You will remember that our second source of information is published literature. I don't think there is any need for me to go into details here, and, in practice, T.I.D.U. is not greatly concerned with this type of material. Indeed, we have neither the time nor the staff to conduct exhaustive literature searches. In any case, other organizations exist which are better qualified to do this type of work.

Having mentioned published literature, I will pass on to the third source—personal contacts. I should like to emphasize at this point that not all scientific knowledge is written up in published or even unpublished reports. Even in the case of well-documented work the report probably only tells half the story. Report writing is a time-consuming business and most scientists and engineers, being human, like the rest of us, do not enjoy writing reports. By the time the report stage is reached, the experiment has been completed, the results have been noted and are probably being used and the scientist is anxious to press on with the next stage of his work. Even if he happens to be the type of person who enjoys writing reports, he has probably forgotten the hours he spent trying to align his spectrometer or trying to eliminate the gremlins from his electronic simulator. These weary and frustrating hours are forgotten in the success of his experiment and are not normally considered worth recording. This experimental deftness, or knowhow, rarely appears in print and is more often than not embodied in the practice or tradition of a particular laboratory. T.I.D.U. is well aware of this point and it does not hesitate to apply to outside organizations when the need arises. They may be our own research workers, or the research associations, or universities or even individual scientists who are known to be expert in a particular field.

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[1] Trotier, A. H., and M. Harman, ed. *Doctoral dissertations accepted by American Universities*. New York, H. W. Wilson Co., 1953. $5.

Jahrs Verzeichnis der deutschen Hochschulschrifte (1949–50). Leipzig, Veb. Verlag fur Buch und Bibliothekswesen, 1953. £3

I have tried to emphasize the fact that T.I.D.U. does not work in isolation. We do not discard old methods merely because they are old, but we are willing to use all and every method to contact and to help our 'customers'.

Turning now to our fourth main source of information—our overseas scientific liaison officers. Our oldest and biggest overseas organization is the United Kingdom Scientific Mission in Washington. This organization is the direct successor of the wartime organization which was born when Sir Henry Tizard crossed the Atlantic in 1940 with, of course, his now famous little black bag. Now, however, the U.K.S.M. is a part of the British Commonwealth Scientific Office which is staffed by scientists from all the Dominions. These people are there to study the American scientific scene and to tell us about new technical developments and trends. In 1949 a United Kingdom Scientific Attaché was appointed to the Paris Embassy and he is responsible for scientific representation in France, Belgium, Netherlands and Luxembourg. Occasionally, he is able to extend his work to Italy and Switzerland. A similar post has subsequently been established in Stockholm to cover Denmark, Sweden, Norway, Finland and Germany. I must emphasize at this point that these liaison offices, although administered by D.S.I.R., are in fact United Kingdom organizations, with the responsibility of serving all U.K. Government departments. This means that their activities are necessarily limited to officially sponsored inquiries. This is, in a sense, unfortunate, because too few people know very much about their activities. To help dispel this ignorance, two booklets which describe some of the work being undertaken by the B.C.S.O. have been published.[2]

I have now described the sources of information used by T.I.D.U. and given some indication of the way in which we try to place it in the hands of those who can make use of it. Now I want to say something about the inquiry service which is operated alongside the documents section in T.I.D.U. Lest you should go away with the impression that T.I.D.U. is the beginning and end of all information services, I must point out that T.I.D.U. is only a small part of the national network. Even in D.S.I.R. it is still only a small part of the overall service. All the D.S.I.R. stations and the Industrial Research Associations maintain information services and handle many thousands of inquiries each year. T.I.D.U. exists to try to answer problems where no obvious specialized source of information exists. Where necessary, we help inquirers by putting them in touch with the appropriate expert. In an attempt to encourage people to help themselves, we produced a guide to the sources of information within D.S.I.R. and the Research Associations. This guide was labelled the *Brief Guide to the research activities of D.S.I.R. and the Research Associations*, and it is freely available from T.I.D.U.

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[2] *The B.C.S.O. review of science in the U.S.A. for the year ending June*, 1952, London : H.M.S.O , 1953 40 pp. 2*s*. 6*d*.
Science in the U S.A., 1953, London H.M.S.O., 1954. 44 pp. 2*s*

When we first assimilated T.I.D.U. into the Department, we began to get interested in the ways in which scientists and engineers get hold of the information they need. As a first step, we persuaded the scientists at one of our research stations to detail the methods they used to obtain every scientific fact they needed. This experiment ended prematurely, but the meagre results obtained showed that the scientists found it easier to ask their colleagues for information than to use abstracts or guides.

More recently we have extended this type of experiment in a modified form to industrial establishments in an attempt to assess the importance of the various sources of information.

The results of this work are being applied to our information services as a whole, and they will eventually be published.

At this point it is worth mentioning *Unanswered Questions*, which is a small leaflet we produce for (*a*) publicity purposes and (*b*) to try to obtain answers to apparently unanswerable questions. It is produced at irregular intervals mainly because we have difficulty in finding 'unanswerable' questions. An indirect benefit of *Unanswered Questions*, which is not usually stressed, is that it can throw up problems which need to be solved. In other words, it draws many people's attention to gaps in existing knowledge.

In addition to the national scheme, the T.I.D.U. participates in an international question-and-answer scheme sponsored by O.E.E.C. Briefly, any questions received by T.I.D.U., which cannot be answered in this country, can be submitted to any or all of the other participating countries. The questions are in fact submitted to the appropriate organizations in the particular country concerned. In the United Kingdom, T.I.D.U. is the national centre which handles all such inquiries received through O.E.E.C. In the case of questions of general interest, the various answers received are collated and issued to United Kingdom industry through T.I.D.U. If the answer was supplied by the U.S.A., the report is known as an I.R. report : a United Kingdom answer would be indicated by a document described as a Q.A. report.

I am conscious that I have only been able to give you a very sketchy outline of T.I.D.U. work to-night, but I hope I have said enough to convince you that T.I.D.U. is an organization which some day might be able to help you. I am well aware that the system is by no means without defects, but the defect that we feel is most important is that it is not used sufficiently. We are only too willing to help everybody and anybody and we feel that we, in our own small way, are helping to break down the barriers which have grown up between the various sciences and, indeed, inside particular sciences, in this age of increasing specialization. We do then try to help industry, but, at the same time, we try to help people to help themselves.

Discussion

MR. GODDIN (Coventry Engineering Society) asked whether T.I.D.U., in giving information from the captured documents and reports of German research, gave any guarantee that there was no possibility of infringement of existing British patents.

MR. HILL stated that T.I.D.U. could give no protection whatever against patent infringement. In point of fact, all published reports carried the warning that 'this report is issued with the warning that if the subject matter should be protected by British or U.S. patents or patent applications, this publication cannot be held to give protection as against action for infringement'. It was also of interest to note that Section 4 of the Patents and Designs Act, 1946, stated that : 'German wartime inventions cannot be made the subject of valid British patents'. A similar law existed in the U.S. The users of these reports must, therefore, investigate the patent position in their fields of interest.

MR. D. WHALE (Tube Investments, Ltd., D.D.R.) asked whether, when T.I.D.U. requested information from abroad through the international exchange scheme, the inquirer's name was given. .

MR. HILL said that it was not unless the inquirer specifically asked for it to be given.

MR. WHALE then asked whether Japanese as well as German captured documents were available through T.I.D.U.

MR. HILL replied that most of the Japanese documents were in the U.S.A. and that the information could be obtained from there if necessary through T.I.D.U.

MR. LILLYCROFT (Coventry Engineering Society) asked whether T.I.D.U. had published a sectional catalogue of its holdings suitable for firms interested in certain specific fields.

MR. HILL said that classified lists 18, 19 and 20 were sectionalized under industries, but these lists referred to published reports only. The only index to unpublished material was held in T.I.D.U.

MR. LILLYCROFT then put the case of a manufacturer without any specific conscious problem, who was interested in finding whether anything at T.I.D.U. could suggest improvements in his methods. What could T.I.D.U. offer in such a case ?

MR. HILL said that there was no reason why a manufacturer without any specific conscious problem could not make use of the reports held at T.I.D.U. However, it would be necessary for such inquirers to provide information about their activities and processes. Without this information, T.I.D.U. could, of course, do nothing for them.

THE CHAIRMAN (PROF T. U. MATTHEW) asked whether T.I D.U. received inquiries from abroad

MR. HILL said that T.I.D.U. received inquiries from abroad directed specifically at this country and these normally came from O.E.E.C. Productivity Centres. In addition, inquiries were received from the Overseas Liaison Officers, who were in close touch with T.I.D.U.

THE CHAIRMAN said that in general the Research Associations served their members only and were naturally loth to help outsiders. Could T.I.D.U. help to tap this source of information ?

MR. HILL replied that, although the Research Associations received grants from D.S.I.R., they were completely autonomous. In the main these organizations were very helpful and would normally answer questions from non-members so long as no actual research work was involved in obtaining the answer.

SOURCES OF RUSSIAN SCIENTIFIC INFORMATION

By A. L. Mackay, M.A., Ph.D.
Birkbeck College Research Laboratory

Birmingham, 4th December, 1953

INSTEAD of enumerating the various scientific journals of the Soviet Union,[1] this paper will discuss the special circumstances of present-day Russian scientific publication, since it is the differences from normal British practice which raise difficulties for the inquirer.

The author's own work is on problems of physics and chemistry. The emphasis is, therefore, on these sciences, and general remarks apply to other disciplines only by extrapolation.

General situation

In the Soviet Union the immediate post-war phase of science described by Ashby[2] is now past, and the general programme is one of the application of science on an enormous scale 'for the transformation of nature',[3] backed up by continuous increases in the quality and quantity of fundamental work. The task set by Malenkov for the Academy (the supreme organizing body for science) is '. . . to raise Soviet science to a higher level, developed by criticism and the clash of opinion in scientific work, it being remembered that only by this means can Soviet science fulfil its mission—to occupy the first place in world science'.[4]

Students who have been trained since the war are now appearing as research workers. The steady reading over several years of almost all the Russian papers in a small field reveals that there has been an increase in the quality of research work, which immediately after the war was often at a low level, until now many papers stand comparison with work anywhere. It might be an interesting digression to speculate on the influence of the large number of women entering, for example, physics, often considered a masculine preserve. The sometimes-trying modification of the Great-Russian surname according to the sex of the bearer can be turned to advantage to provide an estimate of feminine incursions. Counting up the authors of recent papers in crystallography shows that 20 to 25 per cent appear to be women.

Returning to the theme, however, as would be expected of a country of 200 millions, considerable material is published in the Russian language in the U.S.S.R. containing scientific information not available elsewhere. The constituent republics of the U.S.S.R. also have scientific literatures in their national languages (Ukrainian, Belorussian, Armenian, Caucasian, Tartar and Baltic languages), but almost all the important original material should be accessible through Russian. Increasing numbers of papers from countries such as Poland and Hungary, where authors seeking a wide circulation for their work have to use major foreign languages, are written in Russian—but the consideration of these is not intended.

The primary interest of technical librarians, information officers and research workers lies generally in current research work described in periodicals, the interest in monographs synthesizing recent work being secondary, while historical and background information, even if of recent origin, has a much more limited appeal. Those concerned need to know what material there is and how to obtain access to it. Because of the special linguistic and political factors, things are done in what may seem peculiar ways and, often, ordinary methods applicable to searching French or German literature are unsuccessful.

The scientific importance of the Russian language

The desirability of learning at least a little Russian might first be stressed. A search of the Russian literature is impossible without a working knowledge of the language, and to have complete translations made privately is very expensive and wasteful as the fraction of any article actually wanted is usually small. It now seems official Soviet policy to use Russian for all scientific publications, although many journals once had English, French or German abstracts, and there were even complete journals in English until 1947.[5] Official speeches at international conferences are generally in Russian. Later it is hoped to explain what can be done without any knowledge of Russian at all, but it would not be unreasonable to expect that all librarians dealing with the requests of research workers should know the thirty-two Cyrillic letters of the Russian alphabet.[6] More than half should be recognizable from the Greek alphabet used in mathematics. The Cyrillic alphabet has even been employed in American scientific text-books when the author has used up all the Latin and Greek letters. Equipped with the alphabet alone, one can do the following things :

(*a*) Read names and, understanding the difficulties of transliteration, cease to be baffled by the variant spellings of names which have come through French or German channels.

(*b*) Read several thousand technical terms which are substantially the same in most languages.

(*c*) Dictate titles and names from the printed Russian over the telephone. To hear someone trying to do this with no knowledge of Russian, but a lively imagination, can be quite entertaining.

The mere quantity of material printed in the U.S.S.R., although no indication of quality, is impressive. In the last twelve months something like one milliard (a thousand million) books were printed.[7] This is much the same number per head of population as in Great Britain. About 10 per cent of the books were scientific. The annual number of new titles (all subjects) is now about 40,000. Incidentally, 30 per cent of the total output is social, political and economic literature. In certain sections of scientific work where publication is relatively unrestricted, up to 20 per cent of the published papers abstracted by *Chemisches Zentralblatt* are in Russian. Although papers in German are still more numerous, Russian must now be the second most important scientific language when its uses both inside and outside the U.S.S.R. are considered. The annual report of the Soviet Academy of Sciences detailing the work done is an impressive document and a significant nibble at the enormous vista of future work outlined by the President of the Academy.[8] Inadequacies in the work of various named Institutes and Academy members are forcibly criticized and the report is by no means whitewash.

English-language material

Much bibliographical work can be done using non-Russian publications, especially in the more economically important and well-organized sciences such as physics and chemistry. Biological, agricultural and social sciences are more difficult to handle. The Russians have no doubt that economics, history and philology are sciences and these subjects are covered by the Academy, which also deals with literature, following the pattern of the great Continental academies. However, only natural sciences will be considered here.

The ordinary abstracts journals, for example American *Chemical Abstracts, Physics Abstracts, Chemisches Zentralblatt* and the *Bulletin Analytique*, cover the main Russian journals adequately and note the most important papers sooner or later. The delays in the appearance of the abstracts are often considerable because of the late and erratic arrival of the journals. Other subjects are generally not so well served, but abstracts journals should be the first step in a search.

A number of bodies publish translated contents lists of Russian journals.[9] The most important is the *Monthly List of Russian Accessions* of the American Library of Congress, which not only translates the titles of all papers in all incoming journals (dealing with every subject), but classifies the papers by subject. The classification is often finer than is convenient for many purposes. Books also appear in the subject list. The whole project is an undertaking which must require a big staff, and which illustrates the attention paid to Soviet affairs by the Americans. The same department of the Library of Congress also compiles bibliographies on various aspects of Soviet life, such as transport or industrial processes, and publishes aids, such as a list of the many abbreviations to which the Russians are addicted.

Our own Department of Scientific and Industrial Research (D.S.I.R.) does the same sort of thing on a more modest scale. The titles translated are not classified by subject and only cover scientific journals. A useful feature in this translated contents list is that Russian book accessions to the British Museum are quoted in advance of their inclusion in the general library catalogue. The translated titles are sent in to the D.S.I.R. by organizations who scan the periodicals concerned, and occasional inaccuracies occur. Recently the D.S.I.R. list printed an erratum : in such and such a title ,for 'baked rats' read 'rats' liver'. The two Russian words are similar, but not indistinguishable. Both D.S.I.R. and Congress give, or will give, lists of certain available translations. Translated contents lists in German also appear.

Translations are often made of important papers by various interested organizations and, to avoid needless duplication of effort, central indexes have been established to hold copies of the translations or to give information on where they may be found.[10] Aslib holds the central index, but the Science Library and the Society for Cultural Relations with the U.S.S.R. (S.C.R.) also have partial lists. The D.S.I.R. has a scheme, announced in the *Translated Contents List*, for financing translations from public funds. A *Guide to Russian Scientific Periodical Literature* is issued by Brookhaven Laboratories in Upton, New York, but is largely superseded by the Congress list mentioned.

Some journals[11] are translated completely and published in America on a commercial basis by the Consultants Bureau and are available at D.S.I.R., the Science Library, the Chemical Society, and other places which may find the heavy expense justified. The National Science Foundation in America has arranged for a thousand pages of material on physics to be translated by the Slavic Department of Columbia University in the coming year. Technical vocabularies are also in preparation. Large quantities of Russian material are accessible in German translation, and publishing houses in East Germany are printing German editions of many text-books.[12]

There are also French and Italian reviews of Soviet work.[13]

Russian-language material

Next, references in Russian will be considered. Apart from the references given in papers and books, there has been no very systematic Russian source. Normal bibliographical tools exist in the Soviet Union but are rarely exported. Russian bibliography, one is told, tends to be ornamented with monumental compilations which stop short at the letter K. There has been no abstracts journal for some time and such sources as the volume indexes of periodicals and (for physics) the brief contents lists published in the *Journal of Technical Physics* have had to be used. However, in October, 1952, an Institute of Scientific Information[21] was set up by the Academy of Sciences under the administration of the Academy Publishing House and was charged with the production of an abstracting journal covering the world literature. This is such an important development that a detailed account is given in an appendix to this paper.

The commercial importation of Russian scientific literature

Most of the non-linguistic difficulties relating to the circulation of Russian material arise from the working, or non-working, of the business system employed. There is only one agency in Great Britain[14] at present selling Russian books and periodicals which are obtained from Mezhdunarodnaya Kniga, the Soviet book exporting company. Each year this company issues a list of periodicals available for subscription (payment being made in sterling through the London agency). The list changes confusingly from year to year, and it is not always possible to say whether a given journal will be available uninterruptedly. Even if the journal is exportable, subscriptions often cannot be accepted. In 1953, 242 periodicals, forty-eight of them scientific, were available. However, the *Journal of Experimental and Theoretical Physics* and the *Journal of Technical Physics* have not figured in recent lists and can only be obtained by roundabout means. In fact, the two journals named do not now even seem to be available freely to subscribers inside the Soviet Union, although one or two copies which had been bought from a Moscow bookstall confirm that at least one of the journals still exists.* Various journals, such as the *Vestnik* of Moscow University, cannot be purchased and are only received by exchange. The Russians themselves[15] do not suggest that security considerations prevent the export of these journals, but attribute difficulties to shortage of paper and printing facilities and to large internal demands. These explanations are only partly credible, although the numbers of copies printed (given in the colophon) is indeed small, and it is to be hoped that commercial discussions now in progress may elucidate the workings of the system even if purchase cannot be put on a reliable basis.

Lists of new books are issued about once a fortnight by Mezhdunarodnaya Kniga, but by the time orders reach Moscow the editions are often sold out. Certainly if you see a Russian book in a shop or library in Britain and order then, it would be quite exceptional to find copies still in stock. This seems also the experience of countries as close to the U.S.S.R. as Poland. Faced with such difficulties, the Library of Congress obtains material through Publications Procurement Officers in Moscow, Helsinki and elsewhere, who buy up copies of everything as it appears in the shops. If something eludes them, and subsequently appears almost anywhere in the world, it is tracked down and photographed for Congress. Regrettably, the Foreign Office does not maintain a purchasing officer in Moscow, although there was such a post for a short time, but the Patent Office and the Science Library apparently sometimes get help from the Embassy in Moscow.

The Exchange Scheme

Parallel with this commercial system, the Library of the Academy of Sciences of the U.S.S.R. maintains its own exchange scheme[16, 21] (other bodies also exchange). It sends out copies of its own publications in exchange for foreign journals, operating on a large scale through many separately arranged exchanges, each of which is usually quite small. This scheme seems to have the aim of short-circuiting Mezhdunarodnaya Kniga and keeping the control of Academy publications in Academy hands. Perhaps it is even harder to find foreign currency for books than in Britain. One relatively minor difficulty is that there is no fixed rate of exchange for the rouble. Russian books are very cheap by any standards and a book-for-book exchange would be disadvantageous for us. An example of this relative cheapness is a book which was produced in the U.S.S.R. as part of the very large translation programme of a special publishing house which handles only translations of foreign literature. The 1951 edition of a standard American text-book on mineralogy costs £5 here. The 1953 Russian translation, complete with figures, additional notes where the original was thought inadequate, and notes of work done from 1951 to 1953, costs something between 15 and 30 shillings (39 roubles).

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*It is expected that these two journals may be received in England in 1954 by the exchange scheme.

Unfortunately, the exchange scheme does not work as smoothly as it ought, although the Fundamental Library of Social Sciences of the Academy of Sciences in Moscow[21] is more business-like. However, the latter library only rarely handles material on the natural sciences. Part of the trouble is that Soviet librarians appear to know less about the organization and methods of British libraries and publishers than we know about theirs, and are offended when their letters offering exchanges to the wrong authorities are not answered. This primitive barter system of exchanging one copy of this for one copy of that is a most inadequate way of conducting affairs, and there seems to be some agreement in Britain that the normal buying and selling of publications would suit most people here best.

A small informal conference was held in London recently to begin to sound the possibilities of setting up some central body in Britain to handle these exchanges in bulk, but any action in publicizing the matter further was postponed in the hope of improving commercial relations. The most satisfactory way under the present dispensation might be for some library to place a contract to buy every scientific book automatically as it is published, but none seems able to justify the expense. A central clearing house might be necessary to conduct such a project.

Consultation of the literature

Having become aware of the existence of certain material in Russian, how can one gain access to the literature ?

(1) The British Museum, the Patent Office and other non-lending libraries have stocks which can be consulted.

(2) Books and monographs can be borrowed in the usual ways from the Science Library, D.S.I.R., S.C.R.[17] or other lending libraries. (Certain scarce publications are not allowed out on loan.) Borrowing is best done through one's own local library and the National Central Library,[18] where a Russian Union Catalogue is maintained covering (eventually) the holdings of all lending libraries in the country. Because of the fragmentary nature of the runs of periodicals and the small numbers of books available, such a catalogue fulfils an important role. Even major periodicals have serious gaps. The British Museum probably has the best general collection of books.

(3) Various non-lending libraries of varying accessibility have

collections on specialized topics. The Geological and Natural History Museums are examples.

(4) Private individuals often have useful books, sometimes unique, but obviously available only through personal contact.

(5) Photographic copies are available from big libraries here and abroad. In America the Library of Congress will microfilm items mentioned in its lists and the American Chemical Society will do the same for items abstracted. The French Centre de Documentation du Centre National de la Recherche Scientifique (C.N.R.S.)[19] has a very useful service, based on microfilm and connected with the *Bulletin Analytique*. The Microcard Foundation of Middletown, Connecticut, reproduces eleven journals in its system.

(6) One possibility should not be neglected. Authors of Russian papers have been known to send reprints. The number they are allowed is very small, but it has been represented to the Academy that it would be desirable to send some abroad. It might be useful for inquirers to write for reprints, but an answer need not be expected.

(7) As a last resort, a search can be made in Helsinki, Warsaw and Prague, where there is considerable Russian material. All these cities have very good bookshops as well as libraries which might help.

Histories and biographies

Lastly, some brief mention of background, biographical and historical material on Russian science and scientists, both contemporary and past, is due.

Biographies of great scientists are numerous and there seem to be far more volumes of collected works and proceedings of memorial sessions than in Britain. During the war large numbers of biographies were prepared as part of the campaign stressing the patriotic nature of Russian culture. Contemporary scientists are said to have a popular following comparable to that of cricketers here.

A good way of starting on any search is to consult the new second edition of the Great Soviet Encyclopedia, of the projected fifty volumes of which about twenty have so far appeared.[20] Volumes come out at about two-monthly intervals in an edition of 300,000. Bibliographies for further study are given under most entries.

Various reports of the Academy contain details of the activities of its institutes and for current scientific news the monthly *Vestnik* (Herald) of the Academy is invaluable. It gives reports of conferences, theses, meetings, decisions, visitors, prizes, obituaries, as well as reports from Eastern Europe and China and papers on general aspects of science. The most up-to-date information comes from this journal and papers presented at the congresses reported may not appear elsewhere for a year or more.

The history of Russian science is very well documented and there is an Institute of the History of Science and Technology (reorganized in October, 1953) devoted to the subject. A brief bibliography is to be found at the end of this paper.

Understanding the Russians, their outlook and their social institutions is one of the key problems of the present time. I would like to repeat my earlier suggestion that you should make some attempt to read what your opposite numbers in the U.S.S.R. have to say, as a preliminary, we hope, to closer cultural contacts bridging the gulf between two civilizations which are, after all, not so dissimilar.

APPENDIX. THE INSTITUTE OF SCIENTIFIC INFORMATION

The processes leading to the recent publication (November, 1953) of a new abstracts journal in the U.S.S.R. are of interest as an example of the central planning of bibliography.

In 1952, the *Vestnik* of the Academy of Sciences published several articles on the problems of scientific documentation.[22] This was obviously accompanied by discussion which culminated in a decision by the Presidium of the Academy[23] to set up an Institute of Scientific Information which was given the following tasks : 'To carry out research on the perfecting of the methods of providing information ; to publish a reference journal, systematically and exhaustively covering the world literature in mathematics and the physical and chemical sciences beginning in 1953 ; to extend this journal in 1954 to the biological, geological and technical sciences ; to compile and publish indexing and bibliographical literature , to draw up reviews on the state of development of various fields in the U.S.S.R. and elsewhere ; to carry out the translation and duplication of papers for institutions and undertakings'.

Dr. D. Yu. Panov, formerly director of the Institute of Fine Mechanics and Calculating Technology, was appointed director of the new institute, which was installed in a large new building in the northern suburbs of Moscow. Abstracting work started, and in May, 1953, a trial number of the reference journal was produced and circulated to interested parties for criticism. Regular publication began with the appearance of four sections of the *Reference Journal* in November, 1953 (for October). Sections on Astronomy, Mechanics and Mathematics will appear monthly, carrying about 500 abstracts in each issue, and the section on Chemistry will come out fortnightly, with 1,000 to 2,000 abstracts per issue. The section on Physics should be available from January, 1954, and Biology and Geology are expected later. Abstracts for the last quarter of 1953 will be included with those for 1954 when the annual index for that year is prepared.

The reference journal seems to be a model publication and the cost of production must be large compared with the income from sales. Only literature published since January, 1953, is included. The technical arrangements are good. Titles and authors are given in both Russian and the original language, even if the latter is Chinese, and each fascicle has both a Latin and a Cyrillic alphabetical author index. The classification by subject is only into fairly broad categories. The abstracts are, in general, a little longer than is usual and some contain figures or photographs. Except for the chemical section, where initials only are used, the full name of each abstractor is given. The abstractors are all working scientists, so that nobody is employed full-time on abstracting, but each paper is also read by the section editor as a check on the accuracy of the abstract. It is noteworthy that the Director himself keeps in touch with the work by abstracting in his own speciality of calculating machines. As well as scientific papers, theses and books published in the U.S S R., book reviews, obituaries and patents are briefly noticed.

The range of journals scanned is very wide indeed, as abstracts from *Pravda*, *Time* and *Practical Mechanics* are printed , although, of course, only of strictly relevant and serious articles. The language distribution of the original papers is of interest. In the Astronomical Section, Abstracts 1–528, there appeared 210 from English, 195 from Russian, 51 from French, 38 from German, 17 from Czech, 14 from Polish and one each from Swedish, Danish and Spanish. In other sections the proportions of Slavonic material (in the astronomical section analysed above 50 per cent, excluding articles in Czech and Polish journals printed in English, French or German) is not so high, and in Chemistry the proportions seem close to those found in the American *Chemical Abstracts*. Of forty abstracts in the sub-section on the nucleus and elementary particles, only three were from Russian papers. Security obviously hinders the publication of astronomical papers less than the publication of nuclear data.

Journals from Eastern Europe and China are probably well covered (although the abstracts are numerically few), but there seems to be a relative shortage of papers by Japanese authors.

Particularly in the sections dealing with comparatively poorly documented sciences, this new *Reference Journal* of the Academy of Sciences of the U.S.S.R. should prove a valuable aid in scientific documentation. It should, at the very least, provide a reasonable coverage of contemporary Soviet work, and may be the only guide to the more obscure literature from Eastern Europe.

REFERENCES

(1) *Serial publications of the Soviet Union*, 1939–51. Library of Congress, 1951.

(2) E Ashby *Scientist in Russia*. Penguin Books, 1947.

(3) S. M. Manton. *The Soviet Union today—a scientist's impressions*. Lawrence & Wishart, 1952.

Bulletin of the Atomic Scientists. February, 1952, *et seq.*

Soviet Science. Symposium at the 1951 Philadelphia meeting of the American Association for the Advancement of Science.

Velikie stroiki kommunizma. Sbornik materialov dlya uchitelya. Ed. V. A. Kovda. Moscow, 1951.

(4) G. M. Malenkov. Otchetnyi doklad XIX s'ezdy partii o rabote Ts.K.V.K.P. (B), p. 98.

(5) *Journal of Physics.* (Acad. Sci. U.S.S.R.).

(6) *The transliteration of Russian, Serbian and Bulgarian for bibliographical purposes* Royal Society, February, 1953.

International system of transliteration of Cyrillic characters. (2nd draft I.S.O. recommendation N.6.) International Standards Organization, London.

(7) A. I. Nazarov. *Ocherki istorii sovetskogo knigoizdatel'stva.* Moscow, 1952.

(8) *Vestnik Akad. Nauk SSSR*, **23**, No. 3, 3–100 (1953).

(9) *Monthly List of Russian Accessions.* Library of Congress. (April, 1948——).

Translated Contents List of Russian Periodicals. D.S.I.R. (June, 1949——).

Inhaltsverzeichnisse sowjetischer Fachzeitschriften. (1952——). Zentralstelle für Wissenschaftliche Literatur. Berlin, N W.7, Unter den Linden, 8.

Guides to Russian scientific periodical literature. Brookhaven National Laboratory, Upton, Long Island, N.Y. (Copies from Office of Technical Services, Department of Commerce, Washington, 25, D.C.)

(10) *Index of translations of articles in foreign languages.* Aslib, 4 Palace Gate, London, W.8.

Science Library, South Kensington, London, S.W.7.

S.C.R., 14 Kensington Square, London, W.8.

D.S.I.R., Technical Information and Documents Unit, Cunard House, 15 Regent Street, London, S.W.1.

U.S. National Centre for Holding and Photoduplicating Translations, National Science Foundation, Science Division, Library of Congress, Washington, 25, D.C

National Science Foundation publishes translations to be purchased from Office of Technical Services, Department of Commerce, Washington, 25, D.C. (Titles in Congress lists.)

(11) Consultants Bureau, 152 West 42nd Street, New York, 18, N Y.

Journal of Applied Chemistry (1952——).
Journal of General Chemistry (1949——).
Journal of Analytical Chemistry (1952——)
Colloid Journal (1952——).
Bulletin of the Acad. Sci., Section of Chemical Sciences (1952——).
Progress of Chemistry (1952——).

Lists of physics papers translated from *Doklady Akad. Nauk SSSR* and published by NSF–AEC Center (Library of Congress) are given in *Physics To-day*, from No. 8 (1953).

(12) *Zetteldrücke der in der DDR vorhandenen wissenschaftlichen Literatur aus der Sowjetunion und der Landern der Volksdemokratie* (fortnightly).

Nachweis von Ubersetzungen wissenschaftlichen Literatur aus . . . (as above) (monthly). (Address as in ref. 9.)

Sowjetwissenschaft (*Naturwissenschaftliche Abteilung*), Gesellschaft fur Deutsch-Sowjetische Freundschaft, Berlin.

Verlag Technik, Berlin, N.W.7, Unter den Linden, 8.

(13) *Questions scientifiques* (Tom. I, 1952, Physique). Les éditions de la nouvelle critique, 64 Boulevard Auguste-Blanqui, Paris, 13me.

Rassegna Sovietica. Italia-URSS, Rome.

(14) Collet's Subscription Department, 45 Museum Street, London, W.C.1.

(15) E. Rabinowitch. U.S.S.R. exchange of scientific information. *Bulletin of the Atomic Scientists*, **8**, No. 2, 48–9 (1952).

N. Semyonov, *News*, No. 15, 19 (1952).

A. Topchiev, *News*, No. 5, 8–10 (1952).

(16) G. Chebotarev, *News*, No. 20, 20–1 (1952).

Vestnik Akad. Nauk SSSR, **22**, No. 3, 68–72 (1952).

(17) Society for Cultural Relations with the U.S.S.R., 14 Kensington Square, London, W.8.

(18) National Central Library (Russian Union Catalogue), Malet Place, London, W.C.1.

(19) Centre de Documentation du C.N.R.S., 16 Rue Pierre Curie, Paris, Ve.

(20) Volume 19, up to 'Kandy'.

(21) Library of the Academy of Sciences of the U.S.S.R., Leningrad 164, Birzhevaya Liniya, 1.

Fundamental Library of the Social Sciences of the Academy of Sciences of the U.S.S.R., Moscow 17, Ul. Frunze.

Institute of Scientific Information, Moscow 57, 42B, Baltiiskii Poselok.

(22) *Vestnik Akad. Nauk SSSR*, **22**, No. 8 and 9 (1952).

Nature, **171**, 555–7 (1953).

W. G. Cass, *The Library World*, **54**, 207–9 (1953).

(23) *Vestnik Akad. Nauk SSSR*, **22**, No. 10, 92 (1952).

Outline bibliography on the history of Russian science (in Russian, unless otherwise indicated).

The personnel of Russian science (Vols. 1 and 2, 1948), (Lyudi russkoi nauki).

Transactions of the Institute of the History of Science (Akad. Nauk, Tom 1–, 1947), (Trudy Instituta Istorii Estestvoznaniya).

The history of technology—bibliographical index for 1949 (1952), (Istoriya tekhniki, bibliograficheskii ykazatel', 1949).

Essays on the history of physics in Russia (Ed. A. K. Timiryazev, 1949), (Ocherki po istorii fiziki v Rossii).

Russian technology (V. V. Danilevskii, 1948), (Russkaya tekhnika).

Essays on the history of mathematics in Russia (B. V. Gnedenko, 1946), (Ocherki po istorii matematiki v Rossii).

The history of chemical trades and the chemical industry in Russia (P. M. Luk'yanov, ed. S. I. Vol'fkovich, vol. 1, 1948, vol. 2, 1949), (Istoriya khimicheskikh promyslov i khimicheskoi promyshlennosti Rossii).

The progress of the biological sciences in the U.S.S.R. in the last 25 *years* (1917–42), (Acad. Sci., 1945), (Uspekhi biologicheskikh nauk v SSSR za 25 let).

220 *years of the Academy of Sciences* (Acad. Sc., 1946), (200 let Akademii Nauk).

La médecine en U.R.S.S. (I. Lazarévitch, Paris, 1953), (in French).

INDUSTRY, INFORMATION AND RESEARCH

By Vernon D. Freedland, A.T.I.

Information Officer, British Hat and Allied Feltmakers Research Association

Bradford, 29th October, 1953

IN the course of my daily round as an information officer engaged in sifting out material from the stream of printed matter flowing across my desk, I recently examined the newly arrived part of a grey-backed journal devoted to recording development in tinctorial science. Among the pages normally given over to more serious matters, I found a story concerning two Yorkshire manufacturers of thirty years ago who had decided to engage a research chemist. At 9 o'clock on a Monday morning, the chemist arrived at the wonderfully equipped laboratory provided for him at the mill and the two partners sat in their office, hugging themselves with excitement and unable to settle down to their regular duties. At about quarter past eleven, not being able to stand the strain any longer, they tip-toed up to the new laboratory, put their heads round the door and burst out . . . 'Well, lad, hast discovered owt ?'

The story ended there, but, with recollections of industry at that date, I picture the chemist after recovering his powers of speech replying, 'Yes, gentlemen, no books !'

That, of course, was thirty years ago, but it is a matter which should concern us very much that even to-day, when the necessity for scientific and technical assistance is at last realized by firms who are preparing to face intense competition from abroad, the importance of ensuring an adequate supply of up-to-date information is not yet recognized by many managements.

My own past experiences of industry have convinced me that there is a great deal of groping in the dark and wasted effort in repeating work already done by others, because managements fail both to ensure a steady flow of current information to the staff and to organize the search of past literature. Current information is necessary not only to keep in touch with what others are doing, but also to spark new ideas and point fresh lines of progress, while the search of the results of previous workers may often show that a problem under consideration has already been investigated and results given which might save prolonged and costly research.

This irresponsible attitude to information is exemplified by my recollection of a firm which employed two qualified chemists, various unqualified assistants, and other technical personnel, but which did not have a single accessible text-book in the place and took but one periodical.

Lest this be thought an isolated instance, I refer to a pilot survey made a little time ago on behalf of the Department of Scientific and Industrial Research. Out of a total of 122 firms interviewed in two selected towns, 33 per cent confessed to having no technical books whatever. Nor was the general picture much better, for only 10 per cent had more than 100 books, 6 per cent had 50 to 99, 27 per cent had between 10 and 49 while 14 per cent had fewer than 10.

What was perhaps even more significant, in that it greatly reduced the value of any collection of literature that did exist, was that 64 per cent of the firms which had books kept them in a manager's or director's office, and in only 4 per cent of the instances were they housed in a separate room or library.

So far as technical journals are concerned, it was found that 2 per cent of the firms interviewed took none at all, 67 per cent received between one and four and in only 31 per cent were five or more journals taken. The situation in regard to the use of information is made more deplorable by the fact, revealed by the survey, that very little use is made by technicians and foremen of libraries outside the firm.

It might be said that, as so large a proportion of firms manage without reference to trade and technical literature and still make profits, the need for information is being over-emphasized. But if the research and development which is now recognized to be essential to the continued survival of a firm is to proceed unhampered, a nucleus of literature which can be easily consulted is a necessity. Moreover, no industry can afford to be insensitive to the day-to-day changes in the commercial and technical fields which are reported in the pages of the relevant periodical literature.

The survey recognizes that the value of information as shown by the number of books held and the numbers of periodicals taken is better appreciated by the larger (and hence more efficient) firms than by the smaller.

It would be interesting to know what is the true position as regards this city, the hub of one of the principal industries in the country and a city which in the past has had a reputation for being both far-sighted and hard-headed. If membership of Aslib may be taken as indicative of the possession of a library or interest in the use of information, Bradford industry is very badly off, for until very recently there was not a single Aslib member in the city. There are now, I believe, about four. This compares very badly with the City of Manchester, which has about thirty.

This city is one of the world's great centres for textiles, and should be particularly interested in information pertaining to that subject. The apparent lack of local collections of literature, apart from that maintained in the city's library, is, I am sure, not so much due to an attitude of 'We have been making textiles for hundreds of years and know everything worth knowing', as to the fact that the wealth of knowledge available is not fully apprehended.

A few figures might be illuminating as to the amount of literature in existence which is of interest to the textile industry as a whole and to the research worker in textiles.

The Aslib *Union list of textile periodical holdings* includes 353 titles (exclusive of change of name). All these are taken by one or other of the twenty-two member libraries of the Aslib Textile Information

Group. The Textile Institute Library has 2,500 books and pamphlets and receives 200 periodicals, while the three major textile research associations' libraries have collections respectively of 20,000, 3,500 and 3,000 books, large numbers of pamphlets and patent specifications, and in each instance take 200 or more periodicals.

While all this ocean of literature is at the service of the textile industry, it does not relieve the individual firm of the necessity of having its own basic collection for the use of its staff nor of the responsibility of keeping a close watch on current developments. Rather should this reservoir of literature (to which, of course, should be added the excellent collection in the city's own library) be used to supplement the resources of the individual firm.

Although I have instanced textile literature, every other industry is similarly provided for.

Why is information so important to industry ? I quote from a memorandum by Dr. B. J. A. Bard.

> 'The development and prosperity (of industry) demand a constant striving to improve the quality and variety of its products, to increase output, to reduce production costs, and to improve working conditions. The attainment of any one of these is progress, and is dependent on the technical staff, who must be in possession of the new knowledge on which the advance is based. It may therefore be claimed that an ample and well-regulated circulation of information is very necessary to technical progress in industry. . . .'

Technical and scientific knowledge of industry is added daily to a swiftly growing pile. It flows from numerous sources—from the research laboratories of industry, universities, technical colleges, research associations, Government laboratories and the research stations of the Department of Scientific and Industrial Research, and from uncountable other organizations at home and abroad.

The danger that valuable knowledge might be buried in the deluge and lost to those best able to make use of it, if no organized effort is made to sort it out and channel it, is a very real one. The number of firms taking active steps on their own behalf to harness information to their work is far too few, as has been shown above. Some attempt is being made, however, to cope with the spate of new knowledge and a vital part is being played by the forty-three Research Associations which between them cater for most sections of British industry.

It is on the information activities of the Research Associations that I should like to focus attention.

The information section of the Research Association is peculiar in that it faces two ways—inwards to colleagues of the research staff, who must be kept fed with all material appropriate to their investigations, and outwards to the subscribing members of the Association, who look to the section for reports of the work being done and for information of all the latest developments from other quarters which affect their particular industry.

As the repository of a vast amount of highly specialized information which is readily available to its members and by the understanding it has of the requirements of its own particular industry, the Research Association is the natural fount to which an inquirer turns.

In order to collect, classify and sort out the information of use to the research team and to its members, the section peruses a well-selected range of periodicals covering the required field, and to ensure that any material that might appear in other publications is noted, a considerable number of abstracting journals is likewise scanned. To keep abreast of the patents literature, the *Official Journal of Patents* and the *United States Official Gazette*, as well as other lists, must not be neglected.

The building up of a library of books, pamphlets, reports, patent specifications, standards, etc., which will ensure as complete a coverage as practicable of the relevent subject matter, is of primary concern, for these are an essential part of the Association's information service. It was in no spirit of idle boasting that the annual report of one research association stated : 'Although no catalogue of the library has been issued for some years, it can be safely assumed by members that we can lend them almost any book, pamphlet or article bearing on——production.'

The Research Association information section serves its industry in many ways. Loans of books, pamphlets, patents and other literature are everyday affairs. A swift photocopy service, when loans cannot be made, is greatly appreciated by the inquirer, particularly as the item may then be retained for extended study. Requests for items of specialized information are often more readily and effectively answered by the Research Association than could be expected from other sources of information, because of the nature of the available resources and the various special skills which can be called upon. The various publications of the Research Association itself generally make their way through the information section. Where the industry concerned normally relies upon highly technical or scientific information, and is amply staffed with qualified scientists and technicians, there is no need to interpret the information as it comes from the laboratories. Many industries, however, have a strong craft basis and the firms are manned at management levels either by men who have come up from the bench or by professional administrators. It is here that the information officer himself frequently plays an important part in preparing material for consumption by the industry by converting the abstruse prose and symbolistic writing of the scientist to workaday language more readily grasped by the non-scientist. Where the research worker expresses himself in terms of chemical formulæ and mathematical equations, the information officer must often be prepared, figuratively, to take the reader by the arm and say, 'Look, old man, the process works like this. . . .' In adopting such a method, he may frequently find himself in conflict with the research worker, who does not react kindly to any attempt to popularize his work.

Published matter of the Research Association which is issued by the information section includes bulletins which contain articles, reviews, abstracts, etc. In many cases where their numbers warrant it, abstracts are published separately. News letters and information circulars put out under various titles give popular accounts and summaries of the work done by the Association, while translations, bibliographies and library catalogues are issued as the occasion warrants. In addition, the editing and publication of the technical or research reports, which are written at a higher scientific or technical level, is often the responsibility of the information section.

A survey of a number of current Research Association reports taken at random shows that progress is being made in the task of making industry conscious of the value of information. To quote from a few :

'Inquiries numbered 1,339, 6 per cent more than last year. . . . The rising curve of loans shows no signs of flattening. This year 5,139 documents have been lent, an increase of 36 per cent.

'Inquiries dealt with by the division totalled 3,578, an increase of 284.'

'Increasing use is made by members of the library and many more inquiries are received for information on a wide variety of subjects.'

'The favourable upward trend in the number of queries has been maintained.'

'Borrowings by members have increased from 855 volumes two years ago to . . . 1,467 in the year now under review.'

It must be emphasized that this growth has not taken place without a great deal of effort on the part of the information officers, librarians and other members of the staffs of Research Associations. The supply of periodical abstract bulletins and lists of library additions, the inclusion of loan request cards in bulletins, and frequent reminders of the scope and facilities of the library and information sections all help to urge the potential user to enlist the aid of these services with greater readiness.

In following up the theme of Industry, Information and Research, I have tried to spotlight the important part that Information plays, firstly in fanning the flame of research, then using that flame to light the path of industry. Information is an essential link between the two—without it, Research is stifled and Industry is deprived of its fruits.

REFERENCE

(1) B. J. A. BARD. *Memorandum on the dissemination of scientific and technical information to industry in the United Kingdom and the British Commonwealth.* Fed. Brit. Industries Industrial Research Secretariat, 1946.

Discussion

MR. W. L. THOMAS (Woolcombers, Ltd.). Can you give a breakdown of the figure of 353 different periodicals dealing with the textile trade, e.g., whether annually, monthly or weekly and what part of the trade do they cover ?

MR. FREEDLAND : One could only hazard a guess offhand at the frequency of publications, but probably 80 per cent appear monthly. They cover textile machinery, hosiery, as well as the actual textiles generally.

MR. A. H. RAINE (Brotherton & Co., Ltd.) : How can one know about all the material in one's own library ? It is impossible to read it all.

MR. FREEDLAND : It is the job of the information officer to go to his index whenever he has a question. He cannot be expected to read everything and to retain it in his memory, but he should have a general idea of the ramifications of his library and know how and where to find information when wanted. There is, however, no royal method of reminding people about all the details of the terrific amount of information available.

A MEMBER : One critic disagreed with the statement that it is the function of the Research Associations to act as sources of information and suggested that they should confine their activities to research.

MR. FREEDLAND : An information service is only one part of a Research Association's duties. If, however, it is unable to give industry information gained as a result of its work, then it is not making the best use of its staff.

COUNCILLOR ALICE BARBER : Is not the reason for the small number of Aslib members in Bradford because of the splendid public library facilities which it possesses and also those of the technical college ?

MR. FREEDLAND : Although there are first-class facilities in Bradford, inquiries show that the use of the facilities is not all that it should be.

A MEMBER : Quoting a remark by Mr. Freedland about 'Who pays the piper, calls the tune', is it not particularly appropriate that Research Associations should confine their services purely to members ?

MR. FREEDLAND : This is generally a matter of Council policy. In the British Hat and Allied Feltmakers Research Association, the attitude is taken that there are no barriers to knowledge and that where information can be given without jeopardizing the interests of members it is given to bona fide inquirers. During the past year about 45 per cent of inquiries dealt with by the information section came from non-members.

MEMBER'S FORUM

TRAINING FOR LIBRARIANS AND DOCUMENTALISTS

THE F.I.D. Council at its meeting in Vienna in June, 1953, considered a resolution adopted by the International Library Committee in September, 1951, and a comment on it made by the Library Association, and has asked for a statement of Aslib's views. The resolution adopted by the International Library Committee is as follows :

> 'It is recommended :
>
> (1) That the Joint Committee [i.e. of the International Federation of Library Associations and the International Federation for Documentation] on the Professional Education of Librarians and Documentalists should be maintained and that its secretariat should be enabled to collect further information for publication ;
> (2) That the membership of the Joint Committee should be extended by inviting the participation of the International Council of Archivists and the International Council of Museums ;
> (3) That separate training for librarians and documentalists should be created where necessary ;
> (4) That mixed schools for the training of teachers of librarianship and documentation should be created in all countries where there are schools for librarianship and documentation ;
> (5) That Unesco should organize seminars for study by those responsible for education of librarians and documentalists of the problems arising in their work'.

The comment of the Library Association, which was published in the *Library Association Record*, vol. 55, no. 7, pp. 219–20, was to the effect that librarianship consists of the selection, accession, organization and exploitation of all forms of recorded thought ; that in the view of the Library Association, documentation is simply a part of librarianship and one which is covered by the Library Association syllabus ; and that the Library Association is accordingly opposed to the creation of separate training for librarians and documentalists.

Aslib has sent to the F.I.D. the following statement of its views on the resolution and on the Library Association's comment :

TRAINING OF DOCUMENTALISTS

'While librarianship might in theory be defined as the selection, acquisition, organization and exploitation of recorded thought, in practice the first three of these items are the primary concern of many librarians in this country and it is on these three items that the main emphasis is laid in the current British syllabuses of the two examining bodies—those of the Library Association and of the University of London School of Librarianship and Archives. British experience, particularly but not only in industry, has shown that there are others, called variously Information Officers, Research Librarians, or Documentalists, who, while they practise some of the techniques of general librarianship, also use other techniques and are to some extent research workers. The fact that training is available for such part of their work as may be covered by general librarianship does not alter the need for specialized training in these other techniques.

'Documentalists differ from general librarians in that one basic qualification is specialized knowledge at graduate level of the subject in which they organize their services, and that some of the techniques they use presuppose this qualification.

'Aslib has recently studied in some detail existing British syllabuses and recent British examination papers for the training of librarians, in order to assess their suitability for candidates who wish to become documentalists. None has been found entirely suitable and it seems clear that, at any rate in the United Kingdom at present, it is desirable to create separate training for documentalists. In fact, in response to demands from its members, Aslib has recently drawn up a syllabus more appropriate to the needs of its senior members and is enquiring into the possibility of courses based on this syllabus being established.

'Aslib is of the opinion that the provision of suitable training for both information officers and librarians depends upon the provision of suitable teachers, and would welcome discussion on ways of attracting the best minds in the profession to the training field. Aslib is not, however, convinced at this stage that the provision of training schools for teachers is the best way to achieve this object.

'Aslib therefore urges the F.I.D. to support items 1–3 of the resolution of September, 1951.'

SIGNPOSTS: SOME SELECTIONS FROM THE 1953 SPECIAL LIBRARY LITERATURE

By J. Bird, M.A., A.L.A.

Aslib Librarian

THE aims of this annual review of the literature were set out at some length in the first article in the series (*Aslib Proceedings*, vol. 5, no. 1, February 1953, pp. 27–39), but for the benefit of those who have not seen that paper, and also for others who might like to be reminded of the limitations of the series, it is proposed to recapitulate briefly the main points. This series is intended to assist those who need some guidance in selecting from the mass of literature now being published on librarianship and documentation those items most likely to be of assistance in planning and organizing their own work. It is particularly designed for the relatively inexperienced worker, whether special librarian or information officer, working in a small organization without the assistance of more experienced colleagues. Consequently, all theoretical discussions, however important, have been ignored unless it has been felt that they can be of practical assistance in solving day-to-day library problems, and descriptions of the practice of large general libraries have been omitted unless it appears that they are capable of adaptation to other conditions. Moreover, since the series is not intended to be used as a bibliographical tool (this purpose being adequately served by existing bibliographies) but as a guide to current reading, no attempt has been made to restrict the list to work actually published during the year under review, but it is hoped that the list is representative of items likely to have been received in British libraries during 1953. Every endeavour has been made, however, to see that the articles in the series shall between them cover the whole of the literature adequately and that no important items are missed.

General introductions

The year has produced a number of worth-while introductions to library and information work. Outstanding is the second volume of Holmstrom's *Facts, files and action*.[1] This well-informed review of the various means of recording and retrieving information is almost certainly the best guide that has been written for the industrialist or administrator faced with the problem of setting up an information service, who wishes to study all the possibilities before making any plans. Owing to its excellent index and bibliography, it is also a first-class reference book for the practising librarian or information officer. A well thought out paper by Miss Scott of the Horace Plunkett Foundation,[2] designed to give a résumé of the essentials of library organization for those attempting to set up libraries in under-developed areas, should also be of value to persons attempting to run library services without professional training in other situations. The actual problems of setting up an individual library have been treated by Uvarov[3] and Foskett[4] from slightly different points of view. The closely related process of reorganizing an existing library has been described by Walker.[5] This paper deals with the reorganization of a college library, but the main outlines are applicable to the problems involved in bringing order into any unorganized collection of books. A whole issue of *Library Trends*[6] was devoted to special library problems, and contains much valuable material, while the aims of an industrial library service are described in a joint paper by Maurice, Loftus and Strieby.[7]

Bibliography

The librarian's first duty is the building up of a good stock, and the key to this is bibliography. Selection from the year's bibliographical publications is difficult, but an attempt has been made to pick out those items most likely to be of general practical value. Guides to bibliographies must come first, and, of these, the second volume of the third edition of *Index bibliographicus*[8] is probably the most important, while an interesting report by Malclès[9] on the use of bibliographies in France and a paper on the bibliography of metals by Fullman[10] are also noteworthy. The first volume of Aslib's *Index to theses*[11], prepared at the suggestion of Unesco, represents an important step in filling the gaps in British national bibliographical services. An excellent annotated list of British directories[12] also supplies a real need. P. and G. Ford have produced two useful retrospective indexes to British Parliamentary papers,[13, 14] while Childs has made a study of French Government publications,[15] and Whitby of Soviet bibliographies.[16] Bermondsey Public Libraries are to be congratulated on producing a catalogue of their Metropolitan Special Collection, which is an excellent bibliography of librarianship.[17] Other subjects covered by good bibliographies during the year were information theory,[18] the Marshall Plan,[19] Russian industry,[20] and the Russian language.[21] Three libraries whose catalogues are widely used as bibliographical tools by other libraries produced new volumes or supplements during 1953, namely, the London Library,[22] the British Library of Political and Economic Science,[23] and H. K. Lewis's Lending Library.[24]

The bibliography of periodicals is so important to special librarians as to be worthy of separate treatment. The most important event in this field was the expansion of the Library of Congress's *Serial titles newly received* to include the holdings of other libraries, so as to form a current supplement to Gregory's *Union list of serials*. To mark this the title was changed to *New serial titles*.[25] During the year national lists were issued for Japan,[26] Yugoslavia,[27] and Sweden,[28] while Unesco published a regional list for South-East Asia.[29] The Library of Congress brought out a list of post-war newspapers.[30] In the subject field, the Pharmaceutical Division of the Special Libraries Association produced a union list.[31] In the periodical field also, library catalogues are useful bibliographical tools and a new edition of the Science Library's *Hand list*,[32] and a union list for Oxford[33] were both welcome.

Library co-operation

No special library can ever rely on its own stock alone, and special libraries are probably more dependent on co-operation schemes than any other type of library. The officially sponsored Vollans Report[34] on library co-operation in Britain will provide much information for the novice, and give his more experienced colleague much to think over. American practice, as reflected in the Association of College and Reference Libraries' revised interlibrary loan code[35] is also worth study. A paper by Neumann[36] was given on this subject at the Aslib Aeronautical Group Conference.

Sources of information

Guides to sources of information are indispensable to special library work. Two specialized guides to library resources by De Paris on maps[37] and by Nunn on illustrations[38] both fill serious gaps in our knowledge. A guide to the British chemical industry[39] is particularly useful, because it includes the names of personnel responsible for giving information. A directory of second-hand booksellers[40] lists firms under both locality and subject specializations. In the international field the reappearance of the two standard guides to the world of learning, *Minerva*[41] and *Index generalis*,[42] will be welcomed, even though we may feel that they have a long way to go to regain their pre-war standards. Many will also feel that the value of Unesco's guide to national bibliographic information centres[43] is seriously limited by the decision to list only two institutions in each country. Of the foreign directories, those covering the United States[44] and Africa[45] are the most valuable. A new list of scientific meetings put out by the National Science Foundation[46] is a welcome addition to an important class of publication. Lists of this sort remain valuable even when the meetings they announce are past, since they are useful in tracing the publications which result from the meetings.

Training

The literature on the training of special librarians and information officers was by no means dormant during 1953, but, owing to the highly controversial nature of the subject, the only papers which can be singled out for their immediate value to the types of people for whom this survey is intended are Mrs. Mackiewicz's assessment of present training facilities in Britain,[47] a paper by Broome,[48] which contains a list of visual aids which should be found useful by anyone connected with library training in any way, and a description of an American in-service training scheme by Woodruff.[49]

Administration and records

Apart from the general introductions listed above, the only outstanding items of relevance to the clerical and administrative side of special library work were the Unesco study of library statistics,[60] a brief survey of form design[61] not specifically intended for library use, and a first-class example of special library publicity.[62]

Cataloguing and classification

The literature of cataloguing and classification is notorious for being largely concerned with theory, but 1953 produced an unusually large crop of items of practical value. *Library Trends* devoted a whole issue to the subject,[63] containing much material of practical use. Norris produced a useful primer on cataloguing for students.[54] The Library of Congress issued a second edition of its rules for cataloguing films and filmstrips.[55] Subject cataloguing, classification and indexing are being more and more considered as aspects of the same thing, the subject approach to literature. Vickery's paper on systematic subject indexing[56] is an example of this, as is also the new system of co-ordinate indexing developed by Taube and his associates in a number of papers now collected in one volume.[57] Thompson produced a useful set of rules for subject headings for periodicals[58] and Collison's book on indexing[59] covers all aspects of the subject. The year under review saw what must be regarded as almost a major outburst of activity in relation to the main classification schemes. Bliss published the last two volumes of the *Bibliographic classification* and a revision of the first two,[60] while Ranganathan issued a fourth edition of his *Colon classification*.[61] A French edition of Class 3 of the U.D.C.[62] appeared, and a new index was supplied to the 15th edition of the Dewey *Decimal classification* together with a few revisions to the tables.[63] Two special classifications for rubber[64] and petroleum[65] were re-issued in revised form.

Document reproduction

There was no lack of literature on document reproduction in 1953. The end of the year saw the first part of the F.I.D.'s long-awaited *Manual on document reproduction and selection*.[66] A further report on the comparative values of the various processes was issued by the Admiralty, Bath.[67] A series of papers[68-71] mostly concerned with the diazo process appeared in *O. & M. Bulletin*. In the United States a statement was issued to guide librarians on the microfilming of library materials.[72]

Treatment of special materials

Research reports are a growing burden to many special librarians because of their importance and the peculiar difficulties they present in acquisition and handling, and a great deal was written about them during the year under review. *American Documentation* devoted two consecutive issues to this problem.[73] Fry produced a book on the subject[74] based on a conference held at the Catholic University of America, while one session of the 1953 Aslib Conference was allocated to a discussion of methods of handling them.[75] Woolston has written a useful guide to the American reports for British librarians.[76] Periodicals are another important form of literature which calls for special treatment. The book by Grenfell,[77] with its comprehensive review of the literature, brings together a great deal of material not previously collected. Also of interest are papers by Vickery[78] and Shaw[79] on the factors governing the acquisition of periodicals, and a description by Murch and Hewetson[80] of an unusual circulation system.

Care of books

The preservation of stocks is as important as their acquisition and indexing. Many librarians will be interested in the new discovery by Bracey and Barlow[81] on the protection of bindings from insects and moulds.

Translating and translation

A review of the sources and indexes of translations,[82] better than any previously issued, was prepared by Miss Weitlauf for a meeting of the Metals Section of the Special Libraries Association. The transliteration of languages using the Cyrillic alphabet causes serious problems for library and documentation work, and standardization is much to be desired. Two new systems were issued in 1953 by the Royal Society[83] and by the *Slavonic Review*,[84] and as a third is expected shortly from the British Standards Institution the confusion seems likely to grow worse. Among the important dictionaries issued were one on librarianship[85] and one on civil aviation.[86]

Library periodicals

The year saw the start of one periodical of importance to libraries, *Eye to Eye*.[87] Issued by the Graphic History Society of America, it should prove of interest to all interested in the administration of illustrations collections and in illustrations as historical source materials.

LIST OF REFERENCES

1. HOLMSTROM, J. EDWIN. Facts, files and action in business and public affairs. Part two : Filing, indexing and circulation. London, Chapman & Hall, Ltd., 1953. xvi, 280 pp. illus. tables. diagrs. 32*s*.
2. SCOTT, SHEILA M. A scheme for the organization of co-operative libraries. London, Horace Plunkett Foundation, 1953. 13 pp. tables. (Occasional paper no. 2.)
3. UVAROV, E. B. Starting a small industrial library. *Research*, vol. 5, no. 11, November 1952, pp. 510–4.
4. FOSKETT, D. J. How to start an industrial library. *Aslib Proceedings*, vol. 5, no. 1, February 1953, pp. 3–8.
5. WALKER, T. MACCULLUM. New beginnings. [on the reorganization of a university library]. *Librarian and Book World*, vol. 42, no. 4, April 1953, pp. 65–68.
6. HENKLE, HERMAN H., *ed.* Current trends in special libraries. *Library Trends*, vol. 1, no. 2, October 1952, pp. 169–255.

7. Maurice, Jewell, Loftus, Helen E., *and* Striebt, Irene M. Company-wide library service ; paper read at the Science-Technology Division program on abstracting and information services Toronto, Canada, June 25, 1953. Indianopolis, Lilly Research Laboratories Library, 1953. 15 pp. mimeographed.
8. Besterman, Theodore, *comp.* Index bibliographicus ; directory of current periodical abstracts and bibliographies. 3rd ed. completely rev. Vol. 2 ; Social sciences, education, humanistic studies. Paris, Unesco, The Hague, IFD, 1952. xi, 72 pp. 9*s.* 6*d.*
9. France. Commission Nationale de Bibliographie. Rapport sur les bibliographies internationales spécialisées courantes en France ; rédigé par L.-N. Malclès. Paris, [la Commission], 1953. 102, [7] pp. mimeographed. 480 fr. [En vente : Paris, Bibliothèque Nationale.]
10. Fullman, Benjamin. British guides to metallurgical literature and information. *Special Libraries*, vol. 43, no. 9, November 1952, pp. 348–51.
11. Aslib. Index to theses accepted for higher degrees in the universities of Great Britain and Ireland. London, Aslib, 1950–51 [1953]. Annual. 25*s.* (21*s.* to members.)
12. Henderson, G. P., *comp.* Current British directories 1953 : a comprehensive guide to the local, trade and professional directories of the British Isles. London, New York, Staples Press, 1952. 237 pp. 30*s.*
13. Great Britain. Parliament. Hansard's catalogue and breviate of parliamentary papers 1696–1834 ; reprinted in facsimile, with an introduction by P. Ford and G. Ford. Oxford, Blackwell, 1953. xv ; viii, 220 pp. 40*s.*
14. Ford, P., *and* Ford, G., *comps.* Select list of British parliamentary papers 1833–1899. Oxford, Blackwell, 1953. xxii, 165 pp. 27*s.* 6*d.*
15. Childs, James B. French Government document bibliography. Madras Library Association. *Library science in India*, 1953, pp. 85–97.
16. Whitby, Thomas. National bibliography in the U.S.S.R. *Library Quarterly*, vol. 23, no. 1, January 1953, pp. 16–22.
17. Bermondsey. Public Libraries. Bibliography and librarianship ; a select list. Bermondsey, the Libraries, 1953. 99 pp. mimeographed.
18. Stumpers, F. L. A bibliography of information theory, communication theory—cybernetics. Cambridge, Mass., Massachusetts Institute of Technology Research Laboratory of Electronics, 1953. i, 46 pp.
19. Wittkowski, Adolf, *comp.* Schrifttum zum Marshallplan und zur wirtschaftlichen Integration Europas. Bad Godesberg, Bundesministerium für don Marshallplan, 1953. 382 pp.
20. United States. Library of Congress. *Reference Department.* Manufacturing and mechanical engineering in the Soviet Union : a bibliography ; comp. by Gisella R. Lachman. Washington, the Library, 1953. xii, 234 pp. $1.60.
21. Unbegaun, B. O., *and* Simmons, J. S. G. A bibliographical guide to the Russian language. Oxford, Clarendon Press, 1953. xiv, 174 pp. 25*s.*

22. LONDON LIBRARY. Catalogue of the London Library. Third supplement, 1928–1950, by C. J. Purnell. London, the Library, 1953 [1450] pp. £12 12*s*.
23. LONDON UNIVERSITY. London School of Economics and Political Science. *British Library of Political and Economic Science.* A London bibliography of the social sciences. Vol. vii, 1936–1950, A–F. London, the Library, 1952. xi, 1043 pp. (Studies in Economics and Political Science.) 80*s*.
24. LEWIS, H. K. & CO., LTD. Medical, Scientific and Technical Lending Library. Supplement to the catalogue, including a classified index of subjects with the names of those authors who have treated upon them, 1950–1952. London, Lewis's Library, 1953. 288 pp. 6*s*. (3*s*. to subscribers).
25. *New serial titles.* Washington, Library of Congress, 1953——. Monthly. $40 p.a.
26. JAPAN. Higher Education and Science Bureau. *Scientific Information Section.* List of scientific periodicals published in Japan. Tokyo, Association for Science Documents Information, 1953. [2], 14 pp.
27. YUGOSLAVIA. Centar za Tehnicku i Naucnu Dokumentaciju. Jugoslovenski casopisi (izbor)—Yugoslav periodicals (a selection). Beograd, the Centre, 1953. [10], 47 pp. [Text in Croat, English, French and German.]
28. HALLENDORFF, BARBRO, *comp.* 800 svenska facktidskrifter ; bibliografisk sammanställning, Stockholm, A/B Nordiska Bokhandelns Förlag, 1952. 84 pp. 14*s*.
29. UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION. South East Asia Science Cooperation Office. Scientific and technical journals of East and South East Asia (Hong Kong, Japan, Indonesia, Macao, Malaya, North Borneo, the Philippines, Sarawak, Thailand, Vietnam). 2nd ed. Manila, the Office, 1953. [6], ii, 233 pp. mimeographed. gr.
30. UNITED STATES. Library of Congress. *Reference Department.* Post-war foreign newspapers ; a union list. Washington, the Library, 1953. vi, 231 pp. $1.60.
31. SPECIAL LIBRARIES ASSOCIATION. Science-Technology Division, *Pharmaceutical Division.* Union list of periodicals in pharmaceutical libraries. New York, the Association, 1952. vi, 189 pp. 27*s*.
32. GREAT BRITAIN. Science Museum. Hand list of short titles of current periodicals in the Science Library. 7th ed. London, H.M.S.O., 1953. iv, 388 pp. 10*s*.
33. OXFORD. University. Bodleian Library. Current foreign and Commonwealth periodicals in the Bodleian Library and in other Oxford libraries. Oxford, [Bodleian Library], 1953. [6], 267 pp. 20*s*. (interleaved copies 25*s*.).
34. VOLLANS, ROBERT F. Library co-operation in Great Britain : report of a survey of the National Central Library and the Regional Library Bureaux for the Joint Working Party of the Executive Committee of the National Central Library and the National Committee on Regional Library Co-operation, December 1951. London, National Central Library, 1952. xii, 139 pp. 5*s*.
35. General interlibrary loan code 1952. *College and Research Libraries*, vol. 13, no. 4, October 1952, pp. 350–8.

36. Neumann, Paul J. Thoughts on interlibrary lending. *Aslib Proceedings*, vol. 5, no. 3, August 1953, pp. 203–8.

37. De Paris, Philip M. Maps. London, Library Association, Reference and Special Libraries Section, South Eastern Group, 1953. 12 pp. (Library resources in the Greater London area, no. 1.) 1*s*. 9*d*. (1*s*. 3*d*. to members).

38. Nunn, G. W. A., *ed*. British sources of photographs and pictures. London, Cassell, 1952. viii, 220 pp. 17*s*. 6*d*.

39. Association of British Chemical Manufacturers. Press guide to British chemicals and their manufacturers. London, the Association, 1953. [8], 76 pp. tables. gr.

40. A Directory of dealers in secondhand and antiquarian books in the British Isles 1953–54. Rev. and enl. ed. London, Sheppard Press, 1953. 149, xxiv pp. map. 12*s*. 6*d*. [Cover title : Dealers in books.]

41. Minerva ; Jahrbuch der gelehrten Welt. Abteilung Universitäten und Hochschulen, I Band : Europa. Redaktionelle Bearbeitung Gerhard Oestreich [und] Frieda Degener. 34 Jahrgang. Berlin, Walter de Gruyter & Co., 1952. xxi, 1123 pp. 170*s*.

42. Index generalis, 19th year, 1952–1953 : general yearbook of universities and of higher educational institutions, academics, archives, libraries, scientific institutes, botanical and zoological gardens, museums, observatories, learned societies ; directed by S. de Montessus de Ballore. Paris, Dunod, 1953. xvi, 1673, 55 pp. 10 gns.

43. United Nations Educational, Scientific and Cultural Organization. Guide des centres nationaux d'information bibliographique. *Unesco Bulletin for Libraries*, vol. 7, no. 11–12, November–December 1953, 68 pp.

44. Special Libraries Association. Directory of special libraries : comp. by Isabel L. Towner. New York, the Association, 1953. [4], 297 pp. $10.00.

45. Conseil Scientifique pour l'Afrique au sud du Sahara. Répertoire des bibliothèques scientifiques et techniques en Afrique, au sud du Sahara. Kikuyu, Kenya, le Conseil, 1953. 61 pp. Sh. 2.50.

46. *List of international and foreign scientific meetings*. Washington, National Science Foundation, 1953. Quarterly. 65 c p.a.

47. Mackiewicz, Elizabeth. Education for special librarianship in Great Britain. *Aslib Proceedings*, vol. 5, no. 4, November 1953, pp. 286–9.

48. Broome, Walter F. The use of films and film-strips in training for librarianship. *Assistant Librarian*, vol. 46, no. 5, May 1953, pp. 69–76. [Includes list of films and filmstrips of library interest.]

49. Woodruff, Elaine. In-service training for government librarians. *Special Libraries*, vol. 44, no. 2, February 1953, pp. 48–52.

50. United Nations Educational, Scientific and Cultural Organization. Availability and comparability of library statistics (a preliminary report). Paris, Unesco, 1953. 13 pp. mimeographed. (UNESCO/ST/R/13.)

51. Form design check-list [sic.]. *Small Offset User*, vol. 2, no. 13, November 1952, p. 27.

52. Meldrum & Fewsmith, Inc. Want to know something ? Cleveland, Ohio, Meldrum & Fewsmith, Inc., [1953].

53. TAUBER, MAURICE F., *ed.* Current trends in cataloging and classification. *Library Trends*, vol. 2, no. 2, October 1953, pp. 173–355.

54. NORRIS, DOROTHY M. A primer of cataloguing. London, Association of Assistant Librarians, 1952. 204 pp. 3*s.* 6*d.* (7*s.* to members).

55. UNITED STATES. Library of Congress. *Descriptive Cataloging Division.* Rules for descriptive cataloging . . . motion pictures and filmstrips. 2nd preliminary ed. Washington, the Library, 1953. 18 pp. gr.

56. VICKERY, B. C. Systematic subject indexing. *Journal of Documentation*, vol. 9, no. 1, March 1953, pp. 48–57.

57. TAUBE, MORTIMER, *and others.* Studies in coordinate indexing, by Mortimer Taube and associates. Washington, D.C., Documentation Incorporated, 1953. 110 pp. tables. diagrs. $3.00.

58. THOMPSON, ANTHONY. Rules for subject headings, periodicals subject index, Royal Institute of British Architects Library. *Journal of Documentation*, vol. 9, no. 3, September 1953, pp. 169–74.

59. COLLISON, ROBERT L. Indexes and indexing ; a guide to the indexing of books, and collections of books, periodicals, music, gramophone records, films and other material, with a reference section and suggestions for further reading. London, Ernest Benn Limited, 1953. 155 pp. diagrs. 10*s.* 6*d.*

60. BLISS, HENRY EVELYN. A bibliographic classification, extended by systematic auxiliary schedules for composite specification and notation. New York, the H. W. Wilson Company, 1952–3. 4 v. in 3. tables. $45. [Vols. 1–2 2nd ed.]

61. RANGANATHAN, S. R. Colon classification. 4th ed. Madras, Madras Library Association ; London, Blunt, 1952. [475] pp. tables. (Madras Library Association publication series, 19.) 30*s.*

62. FEDERATION INTERNATIONALE DE DOCUMENTATION. Classification décimale universelle ; instrument pour le travail intellectuel et la documentation sous tous ses formes : publications, bibliothèques, bibliographies, encyclopédies, catalogues et répertoires. 3 : Sciences sociales. Bruxelles, Editiones Mundanaeum, 1952.

63. DEWEY, MELVIL. Decimal classification and relative index. Standard (15th) ed. rev. Relative index vol. New York, Forest Press Inc., 1952. xiv, 471–872 pp.

64. RESEARCH ASSOCIATION OF BRITISH RUBBER MANUFACTURERS. *Intelligence Division.* Systematic classification of scientific, technological, and commercial information on rubber. Croydon, the Association, 1952. 36 pp. (Circular no. 410.)

65. UREN, LESTER C. Decimal system for classifying data pertaining to the petroleum industry. [3rd ed.] Berkeley, Los Angeles, University of California Press, 1953. [2], 94 pp. tables. $2.50.

66. FEDERATION INTERNATIONALE DE DOCUMENTATION. Manual on document reproduction and selection. [Part I.] The Hague, the Federation, 1953. 2 v. illus. tables. diagrs. 50*s.* (FID publ. no. 264.)

67. GREAT BRITAIN. Admiralty. Photographic Service, *Bath.* The economics of document copying ; an enquiry instigated by H.M. Treasury, by William Lord. Bath, Admiralty, 1952. [20] pp. plates, tables. (TDS/522.)

68. VERRY, H. R. Translucent masters for reproduction. *O & M Bulletin*, vol. 7, no. 6, December 1952, pp. 29–34.

69. Mundy, C. Translucent stationery and the diazo method. *O & M Bulletin*, vol. 8, no. 2, April 1953, pp. 39–44.
70. Verry, H. R. Colour response in document reproduction processes. *O & M* Bulletin, vol. 8, no. 4, August 1953, pp. 43–45.
71. Quantity reproduction by diazo paper. *O & M* Bulletin, vol. 8, no. 5, October 1953, pp. 24–25.
72. Proposed statement of principles to guide large scale acquisition and preservation of library materials on microfilm. *College and Research Libraries*, vol. 14, no. 3, July 1953, pp. 288–91, 302.
73. *American Documentation*, vol. 3, nos. 2–3, Spring–Summer 1952.
74. Fry, Bernard M. Library organization and management of technical reports literature. Washington, Catholic University of American Press, 1953. x, 140 pp. plans, tables. diagrs. (Catholic University of America studies in library science no. 1.) $2.25.
75. Aslib. Aeronautics Group. Symposium on handling report material. *Aslib Proceedings*, vol. 5, no. 4, November 1953, pp. 323–44.
76. Woolston, John E. American technical reports ; their importance and how to obtain them. *Journal of Documentation*, vol. 9, no. 4, December 1953, pp. 211–9.
77. Grenfell, David. Periodicals and serials ; their treatment in special libraries ; with a foreword by E. M. R. Ditmas. London, Aslib, 1953. xvi, 200 pp. illus. tables, diagrs. (Aslib manuals, vol. 3.) 12*s*. 6*d*. (10*s*. 6*d*. to members).
78. Vickery, B. C. Periodical sets : what should you buy ? *Aslib Proceedings*, vol. 5, no. 2, May 1953, pp. 69–74.
79. Shaw, Kenneth B. Periodical acquisition policies. *Aslib Proceedings*, vol. 5, no. 2, May 1953, pp. 81–86.
80. Murch, E. H., *and* Hewetson, C. E. C. A scheme for circulating periodicals. *Aslib Proceedings*, vol. 5, no. 2, May 1953, pp. 131–6.
81. Bracey, P., *and* Barlow, F. Urea-formaldehyde resin as a vehicle for semi-permanent insecticidal and fungicidal coatings on book-bindings and bookcases. *Journal of Documentation*, vol. 9, no. 3, September 1953, pp. 158–68.
82. Weitlauf, Frederica M. Some sources of translations and information on translations. [Philadelphia, Special Libraries Association, Metals Section, 1952.] 8 pp.
83. Royal Society. The transliteration of Russian, Serbian and Bulgarian for bibliographical purposes ; [prepared by H. S. Bushell.] London, the Society, 1953.
84. Matthews, W. K. The latinisation of Cyrillic characters. *Slavonic Review*, vol. 30, no. 75, June 1952, pp. 531–48.
85. Lemaitre, Henri. Vocabularium bibliothecarii ; English, French, German, begun by Henri Lemaitre ; rev. and enl. by Anthony Thompson. Paris, Unesco, 1953. 296 pp. (Unesco bibliographical handbook, 2.) 11*s*. 6*d*.
86. International Civil Aviation Organization. Lexicon of terms used in connection with international civil aviation, English-French-Spanish. Montreal, I.C.A.O., 1952. 6*s*. 10*d*. xiv, 197 pp. tables.
87. *Eye to eye ;* bulletin of the Graphic History Society of America. Washington, the Society, 1953—Quarterly. Subscription included in membership dues.

THE NATIONAL CENTRAL LIBRARY

1ST MARCH, 1952, TO 28TH FEBRUARY, 1953

By Miss F. M. Goldspink, B.A., F.L.A.

National Central Library

THE Annual Report for the year 1952/53 noted a milestone in the history of the National Central Library. On 20th June the reconstruction of the Library, which had been largely destroyed in 1941, was celebrated by a formal reopening ceremony, performed by Lord Elgin, and attended by many friends and supporters. The work of the Library could once more proceed without the inconveniences of divided premises and the noise and dust of the previous twenty-one months.

In November, 1952, the Joint Working Party presented to the Executive Committee its own Report, partly based on the recommendations contained in the now familiar Vollans *Report on library co-operation in Great Britain.*

The main work of the Library in supplying books to all types of libraries has continued to increase. Of the 100,049 applications received (a daily average of about 277), 71,257 were successfully dealt with, a percentage of 71.21 as against 68.27 in the previous year. Of these, the Library supplied 15,747 books from its own stock, which now numbers over 136,000, i.e. over a quarter of the total supplied ; these loans represent the speediest and least expensive service of the National Central Library. Libraries abroad and universities at home reaped the greater part of the increase in satisfied requests. British universities lent 23,905 volumes, an increase of 1,940. Overseas libraries also lent more books than hitherto, twenty-one countries supplying 1,026 volumes, in return for 2,154 books borrowed by thirty-eight countries—the National Central Library thereby having contact with every continent in the world.

Outlier libraries now number 225, of which 196 are special libraries and research institutions, and twenty-nine borough libraries, an increase of four special libraries. Their loans totalled 24,478. An outstanding loss was the withdrawal of the British Medical Association from the interlending scheme.

A total of 624 libraries, municipal, county, university and special, co-operate in the Regional Library Systems covering England, Scotland and Wales. In most cases the number of books supplied by Regional Systems to their own libraries has decreased ; their loans to libraries outside their own areas, through the N.C.L., have risen in half the areas, but dropped in the remainder.

The *National Union Catalogue* made further progress by the incorporation of 47,880 slips. With the 28,860 new accessions received, this reduced the total number awaiting insertion to 136,333. The *Outlier Union Catalogue* has been expanded by the addition from contributing libraries of

10,032 cards (or further locations to those entries already incorporated) ; 5,817 entries for works located by the Library ; and 11,752 entries for works sought for but *not* located ; a total of 17,569 entries as the result of searches for books and periodicals. The total number of cards added to the *Outlier Union Catalogue* was thus 27,601, or 8,813 less than in the previous year. The *Union Catalogue of Russian Books and Periodicals* made considerable progress with the help of increased financial aid from the Foreign Office. Entries now total 34,088 volumes, 2,297 periodical titles (61,074 issues) and 93 newspaper titles. Nearly 60 per cent of the 1,637 applications for Russian works were satisfied. In August the catalogue was microfilmed for the Catalogue of Slavonic Books being prepared at the Library of Congress.

The *Union Catalogue of German War-time Books and Periodicals*. The sheaf catalogue for books has been completed and is kept up to date by entering the accessions of co-operating libraries. The catalogue of periodicals is nearing the final stages.

The *Adult Class Department*. The Library's adult class stock was increased during the year by 2,851 volumes. The total issues of 16,225 books show an increase of 1,939 over those of the previous year.

The *British National Book Centre* now has 351 libraries which benefit from its services. Lack of funds for increasing the staff involved concentration almost entirely on the preparation of the monthly lists of books and periodicals offered by co-operating libraries ; little work was possible in making available the accumulation of material at the National Central Library ; and none was possible on an international level. The amount of material available from libraries continued to rise, and 41,129 offers were circulated (an increase of 13,763 over the previous year). These resulted in the redistribution of 22,645 books and 41,820 periodical volumes or parts to libraries in this country and the Commonwealth. In addition, over 40,000 items were distributed to libraries, some from the Centre's own stock and some directly between libraries, making a total of 105,458 items redistributed.

The work of the Library was helped by an increased grant of £4,000 to £31,250 from H.M. Treasury, while other grants and contributions totalled £5,927.

The Library is a focal point of interest to librarians from overseas, and various schools of librarianship regularly send parties of their students to see its activities at first hand.

Satisfactory as this record of the work of the National Central Library may be, there is no room for complacency and much for improvement ; but it has to be remembered that more than half the work of inter-lending falls on other libraries and that the N.C.L. is dependent upon them to a large degree for the speed and success of the central service. Only by improved co-operation at the stage of forwarding requests, and at the point of actual supply, can continuous headway be achieved.

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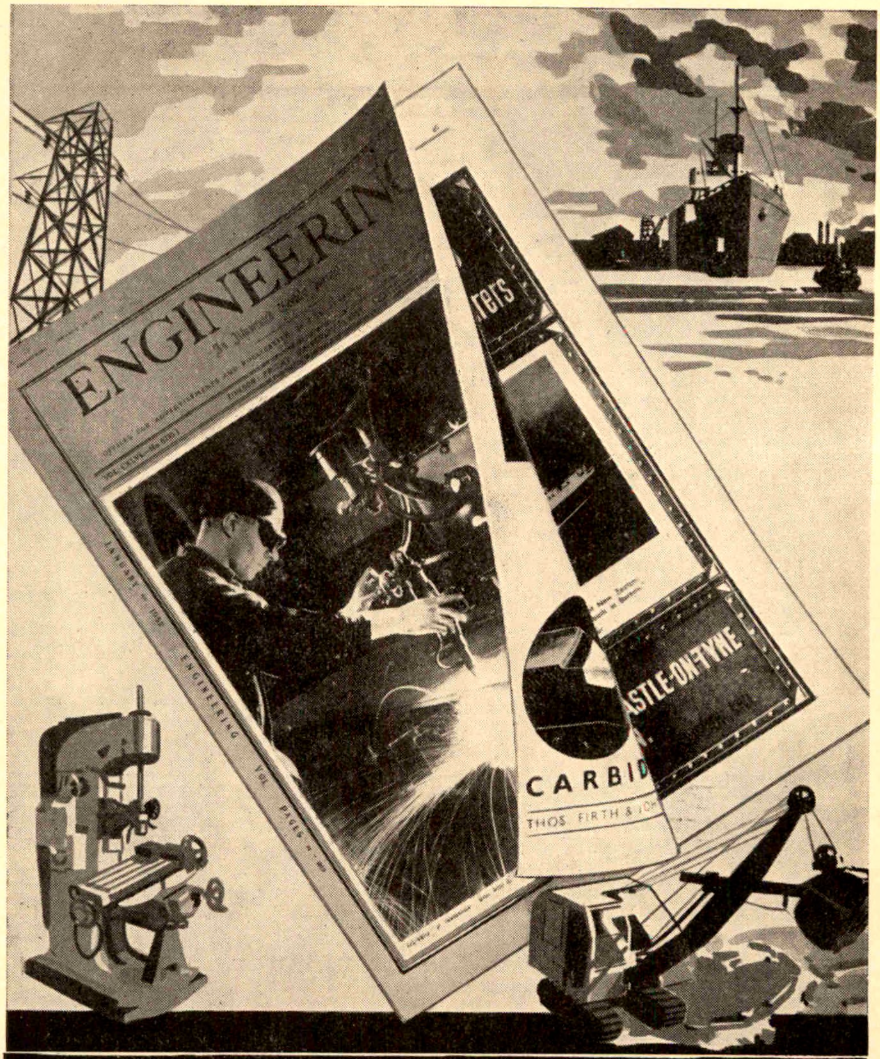

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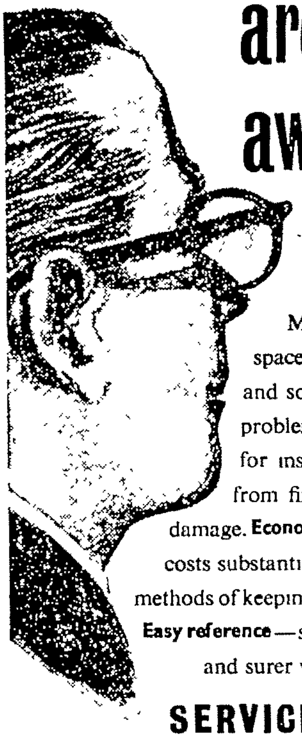

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their treatment in special libraries
by DAVID GRENFELL

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The author has written a book which caters both for the trained librarian and also the beginner who is experiencing his first contact with periodicals as valuable sources of information. He has kept the practical approach to the fore and his well-illustrated manual covers the handling of these important tools of research from A–Z.

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ASLIB PROCEEDINGS

Volume 6 August 1954 Number 3

INTRODUCTION

THE papers in this issue of *Aslib Proceedings* were, for the most part, given at 1954 meetings but two 1953 papers, held over from the preceding issue, are included here. The first is a summary of Miss Littlejohn's talk on information services organized in connection with the Citizens' Advice Bureaux and other activities of the National Council of Social Service, which she gave to the Aslib Winter Meeting on 9th December, 1953. The second is Mr. Barker's 'Sources of Russian economic information', which was given at the Midlands Branch meeting at Birmingham on 4th December, 1953, and which is a companion-piece to Dr. A. L. Mackay's paper printed in the May issue.

The January, 1954, Aslib Winter Meeting was made an occasion for visits to various libraries ; this year they were to the British Museum, the Shell Library Centre and Harrod's Subscription Library. The fifth of the Winter Meetings, on 12th February, was devoted to the thorny question of the circulation of periodicals, the efficiency of the various methods employed, and the value, potential and actual, of internal circulation as a means of disseminating information. A questionnaire was circulated in advance of the meeting to which 320 replies were received. Many members attended the meeting at the Royal Society of Arts but views proved to be so equally divided that it could not be said that any very definite guiding principles emerged from the discussion. Mr. C. W. Hanson's analysis of the replies to the questionnaire is included in this issue, together with Mr. C. E. C. Hewetson's presentation of a case against the circulation of periodicals and a summary of the ensuing discussion.

The sixth Winter Meeting, on 12th March, took sound recording as a source of information as its theme. The Chairman was Mr. Frank Howes, Music Critic of *The Times,* and speakers were Miss M. Slocombe, Librarian of the Recorded Programmes Permanent Library at the B.B.C., and Miss Margaret Dean-Smith, formerly Librarian of the English Folk Dance and Song Society.

The last of this series of London meetings was held on 1st April when Dr. Richard Offor gave a stimulating address on the development of university libraries in British overseas territories. This is printed in full in this issue.

An advanced course for information workers was organized by Aslib from 25th to 28th February. Seven lectures were given on various aspects of the organization and development of information services and we have fortunately succeeded in persuading one of the lecturers, Mr.

A. R. Smith, to write up his challenging talk on the scope of information in industry.

The Scottish Branch Annual General Meeting and Conference was held on 19th March, 1954, in the Scottish Central Library, Edinburgh, with Dr. D. G. Brown in the Chair. Papers read at the meeting included Mr. Agard Evans' 'The answer in a nutshell : or Packaged information for industry', printed in this issue, 'Information and the Press', by Mr. W. D. Barnetson of the *Edinburgh Evening News*, and a talk on Aslib's information services by Mrs. E. Mackiewicz, the Information Officer at Aslib.

The Annual General Meeting of the Northern Branch was held in Manchester on 29th January, 1954, when Mr. A. H. Raine (Brotherton & Co., Ltd.) succeeded Mr. E. N. Simons as Chairman of the Branch.

On 27th January, in Birmingham, the Midlands Branch held a joint meeting with the Library Association (Reference and Special Libraries Section—West Midlands Group), when Mr. J. M. Hazlewood of the *Overseas Engineer* spoke on 'The technical journal'. At another Birmingham meeting on 8th March, special librarianship in the United States was described by Mr. Walter Southern, Librarian of the Abbott Laboratories, Waukegan. The Annual General Meeting of the Branch was held on 17th March when Mr. G. A. Shires (Dunlop Rubber Co., Ltd.) was elected Chairman.

The Aslib Aeronautical Group held a conference on 2nd to 5th April, at the College of Aeronautics, Cranfield, jointly with the Aslib Engineering Group and the Institution of Production Engineers. Reporting and dissemination of production information and the practical utilization of production information were the two main topics for discussion.

Another group meeting of considerable interest was that organized by the Textile Group on 5th March, in Manchester, when a conference of specialist translators in the textile field met to consider methods of co-operation between translators and ways of compiling some form of supplement to the recognized dictionaries. Five language editors were appointed, covering eleven languages, and information collected by them will be published, at approximately two-monthly intervals, in a *Textile Translators' Forum*.

The Members' Forum section of this issue of *Aslib Proceedings* contains two papers ; one by Mr. P. S. Walkins, Librarian of British European Airways, on the results of a survey of some aeronautical libraries in Great Britain, the other by Mr. W. Jacobsohn, a Chartered Mechanical Engineer who has given special thought to the particular difficulties arising in the abstracting of patent specifications.

Lastly will be found a reprint of part of the annual report of Aslib, covering its work in 1953, a note on some changes in the Aslib Articles of Association, and the annual report and accounts for 1953–4 of the British Union-Catalogue of Periodicals.

E. M. R. DITMAS,
Editor.

THE ANSWER IN A NUTSHELL
OR PACKAGED INFORMATION FOR INDUSTRY

By B. AGARD EVANS, M.Sc.

Chief Librarian, Ministry of Works

Edinburgh, 19*th March*, 1954

MISS AGATHA CHRISTIE[1] wrote : " The following day saw Hercule Poirot perusing a large calf-bound volume and other slimmer works, with occasional harried glances at various typewritten slips of paper.

His secretary, Miss Lemon, had been detailed to collect information on the subject of Hercules and to place same before him.

Without interest (hers not the type to wonder why !), but with perfect efficiency, Miss Lemon had fulfilled her task."

What I like about the paragraph is the succinct definition of the sort of service expected by a busy executive. It would not be possible even for Miss Lemon, even if she were interested, to produce a similar satisfactory result on an inquiry on a current technical subject.

We have, collectively, gone a long way in the recording and the organization of information. The system is far from perfect but I want to exclude that aspect for the purpose of this paper. I want to concentrate your attention on the gap—almost dielectric—which exists between the centres of information and the user, especially when the user is at a distance from the centre. Our reference libraries are usually designed to serve the scholar ; but the user which we must have in mind in the technical field may well be a busy executive, a professional man or the owner of a small business who has not the time to follow the strings of clues set him by the information centre. Three years ago, I wrote a paper entitled " Training the library user "[2] ; to-day I want to examine the converse—adapting the library to the users' needs.

The executive wants to know something ; he wants to have the answer on his desk at nine o'clock yesterday. If he has a good intelligence officer, backed by a well-stocked special library, the answer may well take the form of a pile of books, pamphlets and periodicals all neatly tabbed. But 95 per cent. of firms have not got such a service at all, and of those that have libraries, the latter can usually cover the immediate field of the concern, but not the vast background from which information may at any time be required.

First requirement, therefore, is a technical Miss Lemon. Someone in the firm who can put the executive's question into a form that will best produce the required answer. This person needs to know the firm's business and to be a skilled getter-of-answers. In general, he will require a *first-contact point.*

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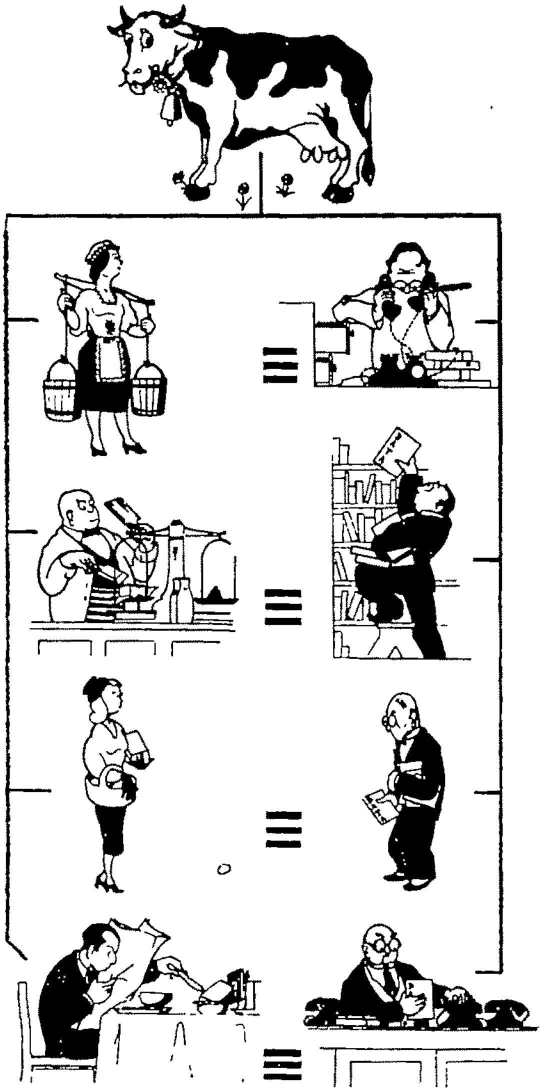

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PACKAGED INFORMATION FOR INDUSTRY

M O W
MARCH 1954

AUTHOR B AGARD EVANS

DRAWING A K BERKS

The first-contact point or retailer of technical information should be a large public library or better a technical library belonging to a technical high school or university. The latter is to be preferred because the scientific and engineering staff of the university will, on the one hand, be critical users and, on the other, might co-operate in a technical advisory capacity. Nevertheless, the large public library has two decisive advantages ; first, ability to attract the necessary funds, and secondly, it is open to all as a right.

Perhaps, the development of my theme will be made clearer by reference to the diagram. Point B is where the vital information is collected and organized in the specialist centres. Point C is the general service centre. Point D is the firm's own servant. Point E is the user.

Now, whether the answers are obtained through the local reference aids or by reference to a specialist centre, a vast majority will, in the first stage, consist of bibliographies or be accompanied by lists of references. Before they can be apprehended it is necessary to see the references.

To give verisimilitude let us take a purely fictitious case. A paper manufacturer called Brown in Graylock wants to know something about the use of electronic control in calendering. He tells a young chemical engineer, Alcock, to get him details. In our imagined tale, the resources of Graylock are quite inadequate, so Alcock goes to the Technical Reference Library in the neighbouring city of Glasburgh. There he can find very little and the librarian tells him that the people who would know are the British Paper and Board Industry Research Association in Kenley, Surrey. Accordingly he writes to them and in due course receives an answer to the effect that they have little first-hand knowledge of the subject, but they believe that it is quite promising. One of their members is applying it experimentally, but the best accounts of its use are to be found in (*a*) a pamphlet from Forest Products Research Laboratory in Madison, Wis., which they attach on loan for five days ; and articles in (*b*) *English Paper-makers Gazette*, (*c*) *Review of Scientific Instruments*, (*d*) *Electronics*, (*e*) *Machin- und Industriewesen.*

Now Alcock finds that his firm takes (*b*) ; the Technical Library in Glasburgh has (*c*) and (*d*) ; and they tell him that (*e*) is on their Union List as taken by MERO in West Hanggroom. He finds (*a*) very practical, (*b*) too sketchy, (*c*) devoted to the controls and not important at this stage, (*d*) fairly useful and (*e*) just the very job.

BUT (*a*) must go back in three days' time, (*d*) has a waiting list of borrowers and MERO do not want to let (*e*) go for more than forty-eight hours and anyway Brown cannot read German.

I am sure that most of my audience will agree that this is by no means a far-fetched story. Alcock is practically forced to prepare a short statement, with extracts, for Brown, which he presents together with the loan of (*a*) for twenty-four hours only. It will not be a very good statement because the subject is strange to Alcock ; and Brown will not find it very satisfying, without the original text, diagrams and illustrations.

What can be done so as to bring Alcock's efficiency up to that of Miss Lemon ?

First, the general service point C (in my story the Glasburgh Technical Library) should subscribe to a very wide range of periodicals relating to the local industries, and the scientific periodicals likely to be required for background. The number of titles probably lies between 2,000 and 3,000, of which several hundred will be retained for ten years.

Secondly, it should hold an up-to-date union list of the specialist periodicals held in the area, with facilities for borrowing.

Thirdly, it should maintain a heavy pamphlet holding, including British Standards, Patent specifications, Government publications, Research Reports, Conference Proceedings, Annual Reports of Research bodies.

Fourthly, it should have as many aids as practicable, namely, abstract journals, indexes and the like. It is not feasible, nor would it be economic for a public library to undertake the detailed analysis of a vast field of literature. This is already done in most fields by centres specializing in those fields.

Fifthly, it must be aware of the specialist centres to which it should be ready and anxious to pass on inquiries. This is very important indeed, because endless harm results from a wholly false pride in one's own resources. Further, the inquiries should for the most part pass directly from the firm to the specialist centre. The fewer the intermediaries the safer. We all know the classic message sent verbally down the line of soldiers, which started as " we are going to advance please send us reinforcements " and was delivered in the form " we are going to a dance please lend us three-and-fourpence ".

All of us here know how rare it is for the inquirer to frame his question clearly, particularly when he is talking to a non-specialist. Sometimes it requires quite a cross-examination before the heart of the matter emerges. Also the form of the answer will frequently depend upon who wants the information and the use to which it is likely to be put.

Sixthly, in order to serve Brown efficiently, there should be facilities for copying articles from periodicals, etc., promptly. Mechanically, this now presents little difficulty by photostat, " azoflex ", " copycat ", etc. The copyright aspect is a great bugbear—it has been greatly eased by the Royal Society's Fair Copying Agreement and I really believe that most commercial periodicals could be persuaded to grant an open licence to a responsible public technical library, if approached in the right way. After all, it is quite good advertising for their journal. Mr. Brown would soon realize that it might pay him better to subscribe than to buy two or three articles at photostat prices. But, at a higher level, such publishers are only too anxious to play their part in the dissemination of information. I understand that more than one periodical is thinking of having special copies produced on transparent paper in order to facilitate cheap copying of sections. To revert to the story, Alcock could then get photostats of (*a*), (*d*) and (*e*) to put before Brown ; they have the advantage over borrowing the originals in that they can be retained.

The copying of articles instead of lending has also a great advantage to the library in preserving its reference character. Heavy lending of periodical parts or bound volumes is troublesome and attended by risk of loss.

Seventhly, help with the translation problem could possibly be laid on. D.S.I.R. has recently introduced a scheme whereby they undertake to get translation from Russian done at contributory rates, i.e. the cost is shared among those requiring the translation. On a similar scheme Alcock might arrange for a translation of the German article and find that half the cost would be borne by the Paper Research Association. But if quite a number of public libraries were to place a standing order with D.S.I.R. for copies of the translations of any technical articles translated in certain fields, the cost for translation could be very substantially reduced. Moreover, the information contained in foreign journals would become much more readily accessible to British Industry. The Aslib Index of translations may trace an existing translation and so avoid the expense and delay of a new translation.

The above, then, is the general thesis in outline. I still have some observations to make in order to dispose of some obvious objections and there are doubtless additional facilities which will occur to abler minds than mine.

Though I have not referred to them in developing my thesis, there are several requirements at either end of the sequence. For example, the industrial concern would be best served by its own library run by a competent information officer. But where this is not possible, the education of the Alcocks is being considered by D.S.I.R. and by Aslib, which is investigating the possibility of running an experimental course, which might be the forerunner of others, for them.

Still more fundamental is for industrialists to be aware of their own needs and the resources so readily available to serve them. There are signs that Britain's urgent need to be up-to-date in all aspects of production is becoming more generally realized. Aslib, D.S.I.R., Ministry of Works and numerous business consultants and official and unofficial bodies have been preaching it for years and their efforts are slowly bearing fruit. This, though very pertinent, is beyond my present thesis. It is handled excellently in the address by Dr. Urquhart[3] given in Edinburgh just a year ago ; and obtainable in pamphlet form from D.S.I.R. Also there is the valuable study recently published by G. Gilfillan.[4]

As Lord Waverley[5] has expressed it : " in order to maintain our export markets, British products must embody more skill, more ingenuity in design, greater originality in conception than their competitors ". No amount of wise management, conscientious craftsmanship or good salesmanship can produce the " brain-content " of a product ; it requires the constant vigilance of a skilled mind, currently informed of the latest developments in and around the product in question. It is therefore incumbent on us all to see that the world's knowledge is mobilized and readily available for application in every industry, for even the most traditional industries are changing day-by-day.

The very real problem of keeping industry continuously informed of new developments is a task to be performed by the technical press, by Research

Associations and by their own information officers. It is, in my opinion, not the responsibility of the Technical Reference Library in an active sense, though passively it is covered by their having the periodicals and pamphlets in the reading rooms.

Reverting to my thesis and the imagined tale, objection may be made that a non-member applied to a Research Association and got service. Most R.A.s would welcome such an approach and give such service ; possibly following it up subsequently with a suggestion that the firm would care to take up membership.

The financial aspect is probably crucial, but it is doubtful whether the amount involved need in fact be very great. Each area lives by its industries ; if objection were made that they were being unduly favoured by the expansion of the library technical information service, it might be necessary to raise additional funds for the purpose. For example, the local Chamber of Commerce, if sold on the idea, might be prepared to arrange a subsidy. This is a matter beyond my competence. I am convinced, however, that there is no future in trying to charge individually for inquiry service. Of course, photostats, etc., would carry a cost-plus charge.

There is also a possibility of making local subject indexes of wide scope by cutting and pasting abstracts, classified by UDC and cross-indexed. I have seen more than one such index in Sweden and Germany, where firms supply cards on certain fields, and the output from these several sources are interfiled. For the most part, I found them rather impracticable, largely owing to wide variations in classification. In the building field we have gone a long way towards obtaining a disciplined classification of the abstracts exchanged under the International Building Documentation scheme, but that is one field only. However, if a fairly widespread demand for this sort of thing were to arise among the great City Libraries of this country it might well prove to be possible to satisfy it.

Finally, staff. It is no use pretending that technical inquiry work can be fully efficiently handled by staff who have not at least a reasonable standard of scientific background. At the same time, it is unrealistic to expect the widespread employment in public libraries of the information-officer type which has been frequently described at Aslib meetings. If the Technical Reference Library of a public library is to embark on the wider activities which I have outlined, it would seem desirable to have one scientist somewhere and a library staff with Inter B.Sc. qualifications, who have specialized or are specializing in scientific literature. It is reasonable to suppose that if the demand exists, the supply will not be far behind.

Let nothing that I have said appear to decry the Technical Reference Libraries. I have the greatest admiration for their growth and development, especially in the last thirty years in the great cities. What I am urging is a logical and conscious step in that development. I think it is fair to say that they have grown up with the accent on self-sufficiency and a sense that here is a storehouse of knowledge, walk up and help yourselves. In my capacity of being in charge of a specialist library, I receive only a few inquiries on building from the public libraries, yet there must be dozens of queries a day put to them on the subject. While it is desirable and even necessary for them to screen out perhaps the 95 per cent. of inquiries which their resources can deal with, the conscious channelling of the remaining 5 per cent. of very important inquiries would contribute materially to the flow of information to industry. At the same time, assistance given in the presentation of information might well encourage industry to make fuller use of the national resources in science and technology.

In seeking the close co-operation of the Technical Reference Libraries in this vital task, I have tried to formulate what the industrial concern's information officer requires of the Technical Reference Libraries ; in return I expect the Public Librarian to state his demands both on the information officer and on the specialist centres.

REFERENCES

(1) CHRISTIE, A. *The Labours of Hercules*, London, 1947 (Collins).

(2) *Aslib Proceedings*, Vol. 3, No. 4, Nov. 1951, pp. 239–44.

(3) URQUHART, D. J. *Public Libraries and industry*, London, 1953 (D.S.I.R.) 12 pp. gratis.

(4) GILFILLAN, G. The organization and use of information in industry, *Aslib Proceedings*, Vol. 5, No. 3, Aug. 1953, pp. 189–202.

(5) Backroom brains, *Sunday Times*, 15th November, 1953.

INFORMATION SERVICES FOR CITIZENS' ADVICE BUREAUX

By Elizabeth R. Littlejohn, B.A.

Assistant Secretary, London Council of Social Service

London, 9th December, 1953

Summary

The work of the Citizens' Advice Bureaux is carried out against a background of national information services and other related work of the National Council of Social Service. No one of these services would be equally effective alone.

Information Service

Both nationally and in London this provides information for three groups :

(*a*) The Citizens' Advice Bureaux ;
(*b*) Subscribers to information services and other outside bodies ;
(*c*) Other departments and groups within the Council of Social Service.

These three contacts strengthen the information service by providing widely based experience.

Methods of collecting information include :

(*a*) Contact with government departments through circulars and press notices as well as through personal contacts. This is a two-way traffic ; they also consult us and use evidence we have collected.
(*b*) Similar contacts with local authorities. These are less systematized because local authorities are not so good at organizing public relations.
(*c*) Current reading for topical problems—Hansard, *The Times,* local government journals and other specialized papers. It is necessary to develop an 'information sense'.

Information required for the monthly *Information Circular* is accumulated, followed up if necessary and then edited. The *Circular* is cut up and the items are filed under subject headings : sources are filed separately. A cumulative index is prepared.

Information required for general reference only is filed according to nature and source, e.g. press notices from government departments, press cuttings, government publications, factual information received during inquiries, general reference books, annual reports and specialized papers from other bodies.

In addition to the above services, there is also the collection of information for special purposes, e.g. for special publications for which there is a proved demand, *Films List, Summer Schools and Holidays List, Places of* *interest in London, Leisure time activites, Picture lending libraries.* (No profit is made but we attempt to cover the expense of production.) Material for lectures is provided and arrangements are made for lecturers on special subjects.

Using the Information Service

(*a*) Citizens' Advice Bureaux : these receive the *Information Circular* and also *Citizens' Advice Notes*. The first is intended for subjects of immediate importance, the second for long-term reference material. In London, in addition, a telephone inquiry service is provided at all times.
(*b*) Subscribers and other bodies or members of the public : these receive circulars if an appropriate payment is made. They may also ask for information by letter or telephone—no restriction is placed on questions answered provided they are not of a technical nature.
(*c*) Legal questions : here general advice based on experience may be offered and the applicant advised about consulting a lawyer. No legal opinion is ever given but inquirers may be referred to the Poor Man's Lawyer service of the Citizens' Advice Bureaux if appropriate.

General comments

The effect of this information service is to give confidence to Citizens' Advice Bureaux inquirers, members of local authorities, other voluntary bodies and those who use any part of the Citizens' Advice Bureaux or Council of Social Service services. Also it makes for the fullest co-operation on the part of those statutory bodies who supply information.

Information of this kind is more than fact-giving ; it depends upon :

(*a*) Knowledge of facts.
(*b*) Ability to give advice based on experience over a wide field of similar situations.
(*c*) Ability to distinguish between giving objective advice and influencing an inquirer to take steps which the adviser considers right.

In considering the way in which the Citizens' Advice Bureaux advise the public the distinction between an Information Centre and the Citizens' Advice Bureaux can most clearly be seen.

SOME N.C.S.S. PUBLICATIONS

Citizens' Advice Bureaux
Advising the citizen. A handbook for workers in Advice Services. 114 pp. 5*s*.
Aims and methods. 4 pp. 1*d*. (Citizens' Advice Bureaux pamphlets, no. 1).

Community Centres and Associations
Our neighbourhood. A handbook of information for community centres and associations. 108 pp. Ill. Paper boards. 4*s*. 6*d*.
Community associations and adult education. 43 pp. Ill. 2*s*. 6*d*. (Community Associations Booklets, no. 3).

Councils of Social Service
A council of social service. Handbook. 36 pp. 2*s*. 6*d*.
A local council of social service. Leaflet. 3*d*.

Old People's Welfare

Age is opportunity. Guide to practical work. Revised October, 1952. 147 pp. Paper boards. 4*s*.

Adding life to years—problems and possibilities for the elderly, *by Lord Amulree*. 101 pp. Ill. 8*s*. 6*d*.

How to start an old people's welfare committee. 6 pp. 1*d*.

Rural

Parliament of the village, *by Lord Justice Scott*. 8 pp. 6*d*.

Reference

Voluntary social services. A handbook of information and directory of organizations. 1951. 200 pp. 6*s*.

Public social services. A handbook of information on services provided by the State. 1951 with supplement to 1952. 150 pp. 7*s*. 6*d*.

Research and other studies of general interest

Young workers at meal time. A study in and about the London area. 20 pp. 1*s*.

Social history of the schools meals service, *by F. le Gros Clark*. 28 pp. 2*s*.

Club management. 34 pp. 2*s*.

Churches Group

The churches' part in the provision of new centres of community life. 14 pp. 6*d*.

Periodicals

Social Service : a quarterly survey. Single copies, 2*s*. 6*d*. Annual subscription 10*s*. Bound volumes for 1947, 1948, 1949, 1950, 12*s*. 6*d*. each.

THE CIRCULATION OF PERIODICALS

I

AN INQUIRY INTO JOURNAL CIRCULATION

BY C. W. HANSON, B.SC.

Information Officer, British Scientific Instrument Research Association

London, 12th February, 1954

Summary

DURING the past fifteen years the major surveys undertaken and published by Bradford,[1] Urquhart,[2] Bernal,[3] Gray,[4] Herner[5] and others have provided a great deal of valuable factual data about the publication, distribution and use of periodical literature, particularly scientific literature ; but there are still gaps in our knowledge. This inquiry is an attempt to fill one of these gaps—to find out how, and to what extent, current periodicals are circulated within an organization.

The survey is based upon answers given to eleven questions in a questionnaire sent to about 1,200 members of Aslib. Three hundred and twenty of these questionnaires were returned (plus about a dozen too late for analysis). They have not been analysed by organization but appear to be reasonably representative of the corporate membership, mainly industrial firms, government departments, and research establishments. Not all the questions were answered by everyone, but there were 255 answers to the least-answered question.

Ninety-six per cent said they circulated journals regularly. This confirms the general belief that journal circulation is common ; but further significance cannot be attached to the figure since only those who were seriously interested in journal circulation were asked to return the questionnaire.

Eighty-eight per cent employed automatic rather than selective circulation, i.e. : they circulated the same titles to the same people. Most of the remaining 12 per cent either made up circulation lists on the basis of preliminary scanning by the information officer or librarian, or displayed journals in the library for a week or so first, and afterwards circulated only those which had not been seen by the people interested in them during that period.

The table below summarizes the answers to the third question : how many journals do you circulate ?

Journals	1–24	24–49	50–74	75–99	100–124	125–149	150+
Organizations	36	44	45	23	28	34	92

The figures show clearly that circulation is a common way of distributing information more or less irrespective of the number of journals

handled : it is not a method used only when the number of journals is large, small or medium.

Answers to the next question—to how many people do you circulate journals?—showed that circulation is also common practice irrespective of the number of readers. The figures were :

People	1–24	25–49	50–74	75+
Organizations	100	74	40	93

In 19 per cent of the cases the 'person' was in fact a group, e.g. : a laboratory, or a separate factory.

An attempt was made to find out the average number of journals seen per person. The replies, grouped for convenience, are given below :

Journals/Person	1–3	4–6	7–9	10+
Organizations	22	75	62	96

Some of the answers to this question were given without much confidence, but since the all-over average—10.1—is of the same order as that found by Bernal[3]—7.7—by more reliable means, they are probably adequately trustworthy. There was a significant difference in the average number of journals per person according to whether 'uncontrolled' circulation (each reader passing on to next on list) or 'controlled' (back to librarian between each reader) was adopted. For 'uncontrolled' circulation the average number of journals per person was 12, and for 'controlled' 8. This is presumably because with 'controlled' circulation the librarian has a vested interest in preventing circulation lists from becoming inconveniently large.

The answers to the next two questions revealed that practice was almost equally divided between the use of 'uncontrolled' and of 'controlled' circulation, 160 organizations employing the first and 150 the second. A few used both. Because these were clearly important questions, the answers were subjected to further analysis in order to find out whether the use of one method or the other was significantly linked either with the number of journals circulated or with the number of people to whom they were circulated. These analyses revealed that there was a slight but significant tendency to employ 'uncontrolled' circulation more often than 'controlled' when either the number of journals circulated or the number of people to whom they were circulated was small or very large, and to employ 'controlled' circulation more often in between. (Small : below 75 journals and 25 people. Large : above 150 journals and 75 people.)

The last question asked was : how much time, in man-hours per week, is spent on journal circulation ? Except in large organizations where circulation was a full-time job for one person (or more), it was difficult to provide accurate answers to this question ; but 149 questionnaires gave fairly confident answers, and also gave number-of-journals-per-person figures. From these figures it appeared that the number of operations (number of people circulated multiplied by average number of journals per person) performed per man-hour was between 65 and 97 for 'uncontrolled' circulation and between 42 and 55 for 'controlled' circulation. These figures seem surprisingly high—there may be a persistent tendency to underestimate the time spent on the job. This is suggested by the lower figures reported, probably with greater certainty, by five large organizations, which returned figures between 32 and 49 for 'uncontrolled' circulation. To give one specific instance, 'uncontrolled' circulation of an average of 8 journals to each of 250 people took 60 man-hours.

It is obvious that 'controlled' circulation must take more work than 'uncontrolled', and from the figures collected it appeared that about 1.7 times more work was involved. But owing to the number of sources of error no great confidence can be placed in this figure. On the assumption that it is not grossly erroneous, however, it is worth noting that the reduced number of journals per person circulated when 'controlled' circulation is employed just about counterbalances the additional work involved.

The broad conclusion which can be drawn from the survey is this : that in terms of cost, work or time, the differences between one method of circulation and another are not great ; and that even as between 'controlled' circulation and no circulation at all the difference, except for operations on the largest scale, is only of the order of one full-time junior's work at the most, and usually much less. That is to say, the cost of providing almost any kind of service will be much less than the probable value of the service if it meets the needs of its users. Consequently, planning the use of current periodicals should start from the users' needs, not from the librarians' convenience, because whatever service is required can be provided without disproportionate cost.

No attempt was made in this survey to find out the value of journal circulation to the people circulated. This would be difficult to do ; but a profitable approach to the problem might perhaps be made by examining the figures given by Bernal[3] of the number of individual journal articles read carefully by scientists per week. The ratio of the amount of material read carefully (and, therefore, presumably of substantial and immediate value) to the amount provided by circulation would give a rough measure of the efficiency of journal circulation as a means of distributing current information.

The figures derived from this survey, and the analysis made of them, are given in greater detail in duplicated sheets which can be obtained on application to Aslib.

REFERENCES

(1) S. C. BRADFORD. *Documentation* 2nd ed. London, Lockwood, 1953.

(2) D J. URQUHART. The distribution and use of scientific and technical information. Paper No. 20. *Report of the Royal Society Scientific Information Conference. 21st June to 2nd July*, 1948. pp. 408–419.

(3) J. D. BERNAL. Preliminary analysis of pilot questionnaire on the use of scientific literature. Paper No. 46. *Report of the Royal Society Scientific Information Conference. 21st June to 2nd July*, 1948 pp. 589–637.

(4) D. E. GRAY. Physics abstracting. *American Journal of Physics*, Vol 18, No. 12, October, 1950, pp. 417–424.

(5) S. HERNER. Information gathering habits of workers in pure and applied science. *Industrial and Engineering Chemistry*, Vol. 46, No. 1, January, 1954, pp. 228–236.

II

IS PERIODICAL CIRCULATION EFFECTIVE ?

By C. E. C. Hewetson

Librarian, H. J. Heinz Co., Ltd.

London, 12th February, 1954

Much has been said, and written, on systems of journal circulation. Mr. Hanson's contribution to this subject is valuable in that, as distinct from its predecessors, it describes no one system in particular but attempts to analyse the cost, in time, of circulation. It incidentally provides some figures by which the efficiency of this operation can be measured in so far as it involves the useful dissemination of information.

Concern has been expressed in recent years regarding the status of librarians, particularly in industry. If their status is to be raised, surely one of the most important factors to be considered is that they should carry out their work—namely the dissemination of information—efficiently. As one of the major sources of information is periodical literature it may not be out of place to examine the effectiveness with which this source is exploited.

To consider the source first. Periodical literature has always been considered to be a race apart from other types of publication. Certain attributes, such as regular periodicity of publication (more usually only up to quarterly frequency justifies identification as a periodical), a common title to all issues, and so on, distinguish periodicals as such. However, these are physical attributes which scarcely affect their informational value. From this latter point of view it may be reasonable to suggest that the only peculiarity of a journal is that the contents of any one issue, volume, or complete series relates generally to one subject. In many fields the subject approach is very specific, e.g. : *Blood, The Museums Journal, Aslib Proceedings*. In others the degree of intension is less, this applies particularly to the trade journals, e.g. : *Food Trade Review, The Electrical Times, Flight*. However, in all cases, including many of the more specialized journals, the breadth of approach to the subject is such that the contents of each issue will be of interest to different users of information in any group of users, for example in a laboratory or a factory.

Whilst, more particularly in the case of the specialist journals, there are undoubtedly certain users who should see each issue of certain journals, it is probably true to say that in most organizations circulation lists are far too long. This results, where circulation is the sole method of exploiting this type of literature, in unduly long delays before the journal has been seen by all those concerned. Furthermore, in certain journals, items of interest to a particular individual or department may not be seen by them because they are not included in the circulation for those journals.

For the reasons already mentioned, circulation of some sort must undoubtedly remain. This, however, is no cause to abandon efforts to exploit journals, as a source of information, more fully.

Whilst Mr. Hanson's analyses of the amount of circulation per man-hour appear to show a fairly high throughput in unit time, he has himself pointed out the roughness of the estimate of man-hours expended in circulation. Even in those cases where more than 30 man-hours were expended, where he feels the returns were more accurate, it is probable that the figure for man-hours may be low rather than high. As the throughput efficiency depends on the man-hour figure it may be reasonable to suggest that the efficiency may be lower than it appears to be from the figures presented. Even allowing for this it may be felt that, in terms of the time spent, circulation is not an unduly uneconomic operation. If time spent in the mechanics of circulation were the only factor this might well be true.

However, we should be more concerned with the economic use of information. In this respect, circulation is surely uneconomical as the sole method of exploiting this type of literature. In many libraries it is the sole method.

If circulation is the only treatment given to periodicals they may or may not be indexed, they will be seen by a fixed group of individuals regardless of the contents of each issue and will, in most cases, take a considerable time to reach the last recipient. In the above list of failings of circulation the words 'read' and 'reader' have been purposely omitted because in many cases the journals are not read. The greater the circulation the less reading is done. The sheer volume appearing on one recipient's desk in a week leads to casual glancing at each issue and cultivates the attitude of mind which says 'I haven't really got time to read this and in any case the last three issues haven't contained anything of interest to me so I don't suppose this one will either'. As a result journals lie around, for several days perhaps, in one place, unread, only to be passed to the next victim who may well follow the same procedure. At length they reach the last recipient, who finds something of real interest —often too late.

It cannot be fairly maintained that the time spent in operating the machinery of circulation, or the type of labour usually employed on this operation, would be adequate for anything more ambitious. Nevertheless, if the librarian is to be recognized as the important, possibly indispensible, member of a research, industrial, or other group which he is to-day claiming he ought to be, then he should state openly that circulation is an inefficient operation, achieves little success as a method of disseminating information rationally, and often but irritates the recipient who longs for a more efficient and selective method which caters more for his specific needs and which, he may think, the librarian can provide for him.

There are various possible solutions to this problem, but probably the most attractive, except to the librarian on whom will devolve a greatly increased amount of work and responsibility, is one which permits of :

1. The scanning and indexing of all journals immediately on receipt.
2. The preparation and wide distribution of a list of items indexed with, at least, short abstracts if possible.
3. The retention of journals in the library for a period of time, probably a week, adequate for readers to visit the library and read them.
4. The selective circulation of these periodicals on the basis of the interest of each issue to particular individuals.
5. The regular circulation of each new issue, preferably after items 1–4 have been satisfied, to those who genuinely feel they must see each issue for reasons already mentioned, and for those unfortunate few who will never rely on the librarian's ability to do his job efficiently.

If a scheme such as this is to be successful it is vital that the librarian should be a person who is able to scan the literature with the varied interests of the organization served fully in mind. To achieve this he must be in full knowledge of company and research policies, both present and projected. This point is of great importance when handling journals which are the first sources of information on advances in all fields of knowledge, but is almost equally important if the librarian is to be able to carry out his other responsibilities effectively. Furthermore, the staff and facilities should be sufficiently adequate to make this possible by relieving the head of the department, the librarian, of the many routine duties with which he is too often encumbered ; this will enable him to fulfil most adequately his function of feeding new ideas into the organization served.

The value of literature, in practically all fields, in securing scientific, industrial and commercial progress is now recognized by forward-looking organizations and individuals throughout the world. The necessity for this valuable instrument of progress to be handled, initially, by persons versed in the technique of handling literature, *per se,* for the specialist who will, in his turn, interpret it as necessary, is becoming recognized more slowly. As the recognition grows it will become more urgent that librarians should be equal to the tasks involved—one of these tasks is the handling of periodical literature. It is, perhaps, not unreasonable to claim that to abandon this type of material to random circulation, an operation which is mainly clerical mechanics, is not exploiting it fully. A more thorough treatment of the periodical literature demands better libraries and librarians of sufficient calibre to undertake this work. The responsibility for securing these prerequisites to the adequate use of all types of literature lies with science, industry and commerce.

Discussion

MR. G. A. SHIRES (Dunlop Rubber Co.) congratulated the first speaker on a masterly analysis of the results of the inquiry, and was surprised that the second speaker had given little emphasis to the subject of abstracts. He believed that each copy of a periodical should be treated as a package of information which should be broken down and prepared for consumption by a varied clientele. He advocated scanning by experts (professional and technical), followed by special action such as the individual routing of the periodical to each person who might be interested in an item of information contained in the periodical. This should be accompanied by the preparation of abstracts, and their dissemination in the form of a bulletin, followed by the display of the periodicals for general use If, in addition to all this, some people wanted certain periodicals to be circulated to them automatically, irrespective of the contents of the particular issue, then these people should be catered for.

MRS. R. G. KNIGHT (Road Research Laboratory) agreed with the previous speaker and said that in her organization all journals were scanned, items of interest marked on a slip, and the periodical sent in turn to each person concerned. A certain amount of automatic circulation was also carried out.

MR K. B. SHAW (Board of Trade) pointed out that the system advocated by the previous speakers was not suitable for a very large organization which included a great many departments scattered geographically. The Board of Trade library handled over three thousand journals and an efficient system of automatic circulation using multiple copies was the only possible method. The library covered a very wide subject field and individual marking and routing was not feasible. He emphasized that periodicals cannot be treated in the same way as reports, each of which is concerned with one item only. The individual needed to see journals for a variety of reasons apart from their subject content, and the needs of the user must be considered.

MR B. VEEN (Shell Petroleum Co.) supported the previous speaker and emphasized his support by describing the Shell system which handles 1,600 periodicals and where the readers are located in twenty-five separate buildings.

DR. D. J. CAMPBELL (Institute of Cancer Research) said that whereas Mr. Hewetson's remarks related mainly to industrial organizations, he would like to speak for the Research Association He stressed that scientists and technicians in Research Associations were frequently interested, for short periods, in subjects widely separated from those in which they normally worked and no amount of scanning, marking and individual routing could satisfy their needs. Indeed, until they actually came across the item in a periodical they might not have been aware of its reference to the work they were doing. He did not think that pre-scanning of periodicals was a practical proposition and he believed that the information officer or librarian must defer to the methods which the scientist has developed for himself.

DR. M. GOYER (RAE/Rocket Propulsion Department) pointed out that in considering the relative merits of uncontrolled and controlled circulation, the figures for circulation per man-hour relate only to the efficiency of the system from the transmitting end, and do not give any guidance as to the comparative merits of the two methods in getting information to the recipient quickly. She also supported the previous speaker and believed that a certain amount of flexibility in approaching the problem was essential.

MISS I. WYATT (J Lyons & Co.) said that from her own experience she concluded that the majority of users considered it important that they should handle the journals themselves and therefore she did not believe that an abstract bulletin could take the place of a system of journal circulation In her own library a scheme had been worked out by the librarian and senior executives in consultation, whereby journals were circulated to heads of groups, who in turn decided which issues each member of the group should see.

A Representative of the Bank of England believed that a certain amount of background reading was essential for every expert and that each should be allowed to choose his own mixture.

MR. AGARD EVANS (Ministry of Works) was disappointed because the meeting had given no definite indication that one of the two methods of circulation was superior to the other. He, personally, supported 'controlled' circulation and thought that further research was necessary into the relative merits of the two systems.

MR. R. F. FLINT (Fulmer Research Institute) believed that scanning should be complementary to circulation and that a compromise involving the judicious use of both methods was the answer. He also agreed that the research worker is interested in many odd scraps of information other than the subject content of specific articles and mentioned, as examples, advertisements, notices of meetings, information about personalities and vacancies and appointments.

MISS R. AICHER (Thomas Hedley & Co., Ltd.) reported that in her own library a change from uncontrolled to controlled circulation had shortened the average circulation time of any particular issue from one year to one month.

MR. P. K. ELPHICK (Dunlop, Ltd) drew attention to the fact that abstracting was not only a method of reducing circulation, but might be used primarily as a means of storing information. He believed that a good information service should use both abstracts and a circulation system.

MR. CHRISTIAN (Siemens Bros. & Co , Ltd) thought that although there might be circumstances in which an abstracting system might be useful, it would certainly not work in his case because the subject field was too large. He advocated a system of rapid initial circulation in which people merely glanced through the periodical and marked on a slip any items which they would wish to study in detail. In this way the copy of the periodical can get round in about two days. Later, the copy is issued to those who have expressed a wish to see it.

MR. F. LIEBESNY (British Scientific Instrument Research Association) agreed with Dr. Goyer that the speed of circulation should be considered when assessing the rival merits of controlled and uncontrolled circulation. He stressed the fact that circulation of periodicals is a service to the reader and some form of punishment should be inflicted on those people who keep journals too long.

MR. GRIFFIN (Brewing Industry Foundation) supported the system advocated by Mr. Christian which was also in use in his library.

MR. F. B. ROBERTS (*Engineering*) was glad to know that there were so many people who still believed in a system of circulation of periodicals. He expressed the view that, if an organization contains a person who professes to know exactly what everyone else in the organization requires, then that person should obviously be the managing director and not the librarian.

MR. C. E. C. HEWETSON, in reply, said that he had not meant Mr. Roberts to take him quite so seriously, but nevertheless believed that in general subject fields it was possible to scan periodicals for other people. He agreed with Dr. Campbell that the process of cross-fertilization of information between research workers was most important, and would not suggest that abstracting was the complete answer to the circulation problem. For one thing it slowed down the rate at which information reached the reader. He thought that the method of rapid circulation used by Mr. Christian was a useful way of tackling the problem, and was convinced that the solution lay in considering the problems of each organization individually and working out a system to the requirements of that organization.

MR. HANSON summed up the comments which had been made on the merits of controlled and uncontrolled circulation by saying that the method of controlled circulation seemed to have all the advantages from the point of view of both library and user. He emphasized the fact that for circulation up to about seventy-five people there was little difference in the amount of work involved in operating the two systems, but he agreed that the speed of delivery should be taken into account in assessing their respective merits.

THE DEVELOPMENT OF UNIVERSITY LIBRARIES IN BRITISH OVERSEAS TERRITORIES

By Richard Offor, B.A., Ph.D., F.L.A.

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Based on a talk given at an Aslib Winter Meeting

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THE creation of university institutions in the overseas territories connected with Great Britain has taken place very largely since the conclusion of the last war : already noteworthy achievement is an effective antidote to the depression that has overtaken us in more general matters. The need for such an impressive and timely step need scarcely be stated. With a new width of vision the rigidity of the colour bar in the countries involved has disappeared. Economically, the countries left in the relaxed 'colonial' system have gained in relative importance. Africa, the West Indies and South-Eastern Asia must take the place of the great Asiatic countries which have so largely cut adrift. Yet Great Britain is hard put to it to find manpower sufficient to supply her own needs, although she must seek earnestly, even in her own interest, for the development of the immense but largely untapped resources of the overseas territories. Thus Africans, West Indians, Malayans and Chinese must find and train their own medical men and women, engineers, lawyers, school teachers, legislators, clergy, all hitherto sadly deficient in number. On a higher plane, our country has been a pioneer in the trustee policy that has taken so firm a hold on the imagination since the institution of the League of Nations in 1919 : not only from relentless local pressure but as a result of real conviction we and our 'Colonies' are moving in nearly every case towards more and more complete self-determination. We may be legitimately proud that in this matter and in the concurrent need for expansion in higher education we have gone far ahead of the other remaining 'colonial' powers.

To act as a co-ordinating centre in London for this outburst of academic activity, the Inter-University Council for Higher Education in the Colonies was set up in 1946 ; its present office is in the Senate House area, a happy circumstance in view of the fact that the University of London has entered into Special Relationship with most of the institutions concerned for the conferment of degrees. Under that Council the present writer was appointed Library Adviser in 1947, thanks to the initiative of the Carnegie Corporation of New York.

Going from West to East the first three places to record all date from 1947. The University College of the West Indies was founded as a direct result of the post-war forward move, as were also the colleges in Nigeria and the Gold Coast next to be mentioned. This enterprise in the

West Indies has a particular political significance. These colleges and universities are fully residential, a circumstance which involved the selection of Jamaica as the largest of the island colonies which could in course of time more readily absorb a large number of undergraduates especially in vacation. Jamaica is as far from British Guiana as London from Asia Minor, and the obstacles to effective confederation are, therefore, considerable : Jamaica is at one end of the chain. All the more welcome, therefore, is the binding link that this great new College will forge : resident students from all over the West Indies and adjacent mainland territories live together as an active community in this lovely area of 600 acres between the Blue Mountains and Long Mountain. Here permanent buildings are rapidly replacing the temporary structures of the 'Gibraltar camp', designed as well as human ingenuity can contrive against earthquake and hurricane : the Librarian recently leaned for some hours with might and main against the window of his capacious living room to prevent himself and his bungalow being blown away towards Kingston !

The Librarian, Harold Holdsworth, M.A., F.L.A., has made a most conspicuous start with this, the future University Library of the West Indies : with its 45,000 volumes it is already far and away the greatest cultural library in all the British Caribbean. Mr. Holdsworth has been successful in getting gifts from the United States, and there is the timely and happy interest of the Queen during her visit, of Queen Mary with a fine gift of Royal books from Marlborough House, all added to the fact that the Chancellor, Princess Alice, Countess of Athlone, laid the foundation of the library : the writer was privileged to be present. Now the new building is already full and a stack is accordingly planned : all who have seen it testify to the care and taste shown in its appearance and administration. The West Indies have not the financial resources that are enjoyed by other places overseas, so they have particular need for generous help.

Across the Atlantic we come to our most populous existing 'colony', Nigeria. At IBADAN, the largest purely African city, in but a few years the UNIVERSITY COLLEGE has grown at an astounding rate. The new site covers five square miles. Already there are completed four halls of residence, teaching blocks in arts and science and a library of six floors, all of striking design yet well adapted to Nigerian conditions. Solid external walls are replaced by numerous apertures filled with a close anti-mosquito wire mesh, so that there is a through current of air, although in high wind and rain shutters along the internal sides of the verandahs can be closed. It is planned to hold 250,000 volumes, with ample room, however, for expansion, for it already possesses 75,000 volumes, largely due to extensive gifts, such as the remarkably comprehensive collection of 18,000 books formed by the African Henry Carr of Lagos, but also to extensive purchase. Mr. Harris, the Librarian, a forthright New Zealander who graduated at Oxford, has been a pioneer in more than one respect. He has inspired the organization of a Bookshop where students and others can find a welcome service hitherto unknown in West Africa.

He has enforced the copyright ordinance of the legislature whereby two copies of every Nigerian publication must be deposited in the college library. A printing press has been set up which is a model for the whole country. Finally, he plans to supervise the compilation of a Nigerian bibliography. Another significant recent development is the acquisition by the Deputy Librarian in the Northern Provinces of a considerable quantity of Arabic manuscripts. A marked individuality characterizes library publications, such as the *Record* and the *Guide* : the current number of the *Record* contains a humorous account of what speedily happened to a brightly coloured length of copper wire that connected low down the new library with the old library five miles away during the transitional period : women's adornments, men's braces, defective bicycles and so forth all profited, so that this most useful telephone communication had to be abandoned. Mr. Harris adopts a philosophic outlook and, after all, the people are not more criminal than elsewhere but the safeguards are fewer.

The UNIVERSITY COLLEGE OF THE GOLD COAST, founded soon after Ibadan, is an equally stupendous enterprise. A mile-long avenue will divide the striking site on Legon Hill of five square miles. A series of halls of residence is planned, one being already finished, which, with its three courts, its library, chapel, hall, and blocks of tutors' flats, astonishes all visitors. Building on the new site is not so far advanced as at Ibadan, for at Achimota the College has been able in part to occupy permanent edifices which can be utilized for a short term of years. The library under Miss Walker has developed with astonishing rapidity. Its 65,000 volumes have almost entirely been assembled out of a substantial book fund : especially noteworthy are the numerous sets of periodicals and series. So rapid has been development that even a large staff of twenty-five, much the same as at Ibadan, has had a hard struggle to keep its head above water, for cleanliness and neatness are marked features. Unlike other colleges, the science books are largely departmentalized but a great new building centrally placed is to go up on the new site. As at Ibadan, the Bookshop is easily the finest thing of the kind in the Gold Coast, whilst as in the West Indies and at Ibadan, the library possesses its own bindery—all three binderies are efficiently staffed by local craftsmen. Also, legislative enactment enables the library to claim a copy of all Gold Coast publications. The Furley gift has important early Gold Coast works, including that by Müller (Hamburg, 1676), Loyer's *Relation* (1714) and Bosman's *Description* (1705 and 1709).

The three West African territories, Nigeria, the Gold Coast and Sierra Leone, are, members of Aslib should note, erecting Colleges of Technology, each on an ample scale. They do not come under the Inter-University Council's guidance but under a special Committee—Kenya is also involved. However, the writer has very pleasant memories of Kumasi (Ashanti) and of Fourah Bay (Sierra Leone), the latter also possessing a 'University Department', whose students have for many years successfully sat for degrees of the University of Durham : good libraries are being developed.

West Africa has for centuries been open to European penetration, but the interior of East Africa has only become known within the lifetime of our fathers. Thus education at all stages has been more backward. There is but one college for the four East African territories, Uganda, Kenya, Tanganyika and Zanzibar, which is the UNIVERSITY COLLEGE OF EAST AFRICA on Makerere Hill, adjacent to Uganda's largest city, Kampala, and this college has only emerged from a kind of high school status since the last war to become, like the colleges already mentioned, a University College for degrees in the University of London. It is strikingly placed on one of Kampala's ring of hills, 4,000 feet above sea level, with a peep of Victoria Nyanza from the summit. The library at present occupies a wing of the central building, but a great new structure is planned, centrally placed. No other library for size and cultural character can compare with it in all the four territories, so that it also has a national character. It possesses already 31,000 volumes, in which should be included the separate Medical Library on Mulago Hill which has much benefited, especially in America, from the enthusiastic efforts of the medical teachers. In a relatively backward country, Miss Larter, B.A., F.L.A., the Librarian, has had an exceptionally hard struggle, so difficult has it been to recruit a competent staff.

North of Uganda lies the Sudan, hitherto a condominium and, therefore, not under the Colonial Office, but yet with a UNIVERSITY COLLEGE OF KHARTOUM which has received welcome advice from the Inter-University Council ; the college is a combination of the Gordon College and of the Kitchener School of Medicine. Like Makerere it has emerged from high school character to become a college for training undergraduates of the University of London. Gordon College faces the Blue Nile, and within it the library occupies a long and lofty central suite, so that departmentalism is less of a trouble here than elsewhere, save that, as agriculture and medicine are taught in separate places some way distant, there have to be branch libraries fully placed, however, under the librarian's control. Mr. Jolliffe, a graduate of London and F.L.A., has been an unusually successful and enthusiastic administrator. Despite severe bereavement, he has struggled manfully to organize what, once more, is the one national library of the Sudan, with 36,000 volumes. Service is quick and efficient, for Mr. Jolliffe has found willing Sudanese help. There is a good Arabic collection. Borrowing is not so paramount a need as elsewhere, for library hours are liberal in a residential college, where residence is but just across the road. Mr. Jolliffe is personally on excellent terms with all members of the community, Sudanese, British, Moslems, Christians, and even a short visit gives much inspiration.

And now a fifth African college is planned, again for London degrees in the formative period, at Salisbury in RHODESIA. Here is a grand, almost unique opportunity for proving that in Africa, African and European students can live, work and play together side by side.

That area of vital strategic importance, South-East Asia, possesses now two full universities, Malaya and Hong Kong. The UNIVERSITY OF

MALAYA dates from the junction of the King Edward VII College of Medicine and of Raffles College in 1949. It is the largest of our existing overseas university institutions, for it has 850 undergraduates, it has received more lavish monetary gifts from private sources than elsewhere, and in general it has gained a worthy reputation throughout all that part of Asia. The Chinese, who form 60 per cent of the students, have been conspicuous in their support, even thousands of the poorer Chinese contributed their mites to the appeal fund. In accordance with this, Mr. Clark, a graduate of Melbourne, has already a great library under his care with 150,000 volumes of which 80,000 are in a collection recently brought from China. Arts and science are at 'Raffles' in a recently completed air-conditioned building, the rest in the Medical School. Extensive grants and gifts have rendered possible a most remarkable assemblage of long runs of periodicals especially in science and medicine, including a complete set of the *Philosophical Transactions*. Microfilms and microcards are a conspicuous feature. The library staff numbers thirty-eight in all. The gift of £58,000 for oriental arts and science, £23,000 for Chinese, £2,916 for Indian art and culture and £5,000 each from Australia and New Zealand have all contributed to this outstanding result.

The UNIVERSITY OF HONG KONG was founded in 1911. In that romantic and highly developed little colony 'upon the frontier, towards the foe', it has an isolated position which commands our close attention and sympathy : large numbers of refugee Chinese students have flocked to it from the mainland for whom provision must be made. The library under Mrs. Scott, A.L.A., is housed in a series of rooms in the main block, but most of the Chinese collection, including that given by Mr. Fung Ping Shan and his family, are in a separate library, the total being 75,000 books in the main library, and 73,000 Chinese volumes. The range of interest is extensive, for there are important departments of architecture and engineering, and there is a flourishing faculty of medicine. Recent library progress has been markedly rapid.

Finally, the ROYAL UNIVERSITY OF MALTA has a unique position, for in its original form it was founded at the end of the sixteenth century and reconstituted as a university in 1769. It is thus the oldest of our overseas universities and the closest in geographical position to Great Britain, a fervent outpost of Europe and of Catholic Christendom. Small in numbers of students, its university yet has a wide range of faculties, in which theology is naturally prominent, and its graduates are found far and wide. Until the war, library provision was scanty, for resort was had mainly to the historically rich Royal Malta Library. But increasing emphasis on English as a medium of instruction has induced a change of policy, whereby the original small and unduly lofty room has given way recently to more extensive and appropriate accommodation including special provision for Science and Medicine. Two grants from the Colonial Development and Welfare Fund of £5,000 each have been used for the acquisition of long sets and series in arts, science and medicine, so that a really up-to-date library is now coming into being under the able guidance of Mr. Pullicino, A.L.A. The kindness and courtesy shown to visitors leave one with a deep sentimental attraction towards this hard-pressed crowded community. The enthusiasm shown when I sent to the library a Vulgate of 1552 with a quaint inscription, which I found at Guildford, was enough to melt anyone's heart. Already the library possesses 21,000 volumes.

A few general comments may be added.

Library Staff. In the larger places the librarian and three or four senior assistants are as a rule graduates from overseas with professional training or qualifications. The commendable tendency is for the library staff to possess academic rank, the librarian having professorial salary and status, the senior assistants those of various lecturer grades. As in Great Britain, if the librarian is of professorial rank, he or she should not only or even primarily have degrees or diplomas in librarianship, but should possess the highest possible cultural qualifications, if not a higher degree, then the ability to talk the language of heads of departments in a general sense, not just in technical librarianship but with a wider scholarly outlook. This has proved not easy to come by, but it is dangerous to assume that an academic institution will accept librarianship pure and simple as qualifying for a high academic post : anthropology, literature, historic interests—usually it will be an arts subject—the librarian should have some expert knowledge in one or other of such realms. For the moment only Europeans have been found to occupy senior posts although in the lower grades 'local' personnel has proved eligible, even so with close supervision. But the colleges will not have fully justified their existence if in course of time they cannot find graduates who may obtain professional training either in this country or in a library school which should find a place in every university and college overseas, so that Africans, West Indians, Malayans and Chinese can occupy senior positions. That time has not yet arrived but it ought not to be far distant. Save in the West Indies, all the universities and colleges have to wrestle with some linguistic handicap. In one library, nine different tribes are represented on the library staff, who must converse with one another in English. Almost every Colony and the Sudan have this difficulty, for the students, too, have to acquire a good knowledge of English as a lingua franca and the language in which instruction is given. Finally, an earnest plea is entered for these senior men and women who have worked valiantly, often at great odds, in the pioneer task of commencing what will become great libraries in great universities. Climate and social conditions militate against a lengthy period of service such as is common in their homelands. Yet it is not easy for them to receive well-merited recognition by due consideration when applying for vacancies in this country. This problem seriously affects all classes in an overseas college and it clamours for solution.

Little need be said about *buildings*. Earthquakes and hurricanes enjoin precaution in foundations and superstructure where they are endemic. Everywhere tropical heat and insect pests are trying afflictions : Ibadan does without solid walls so that there is a free current of air. In a humid climate steel requires adequate 'stoving', whilst books and cases have to be carefully treated at frequent intervals. In this unæsthetic age of architectural design, structures are highly 'functional', which shows a gratifying advance on the incredible feats in library planning inflicted on previous generations. One has the assurance that tropical vegetation and real skill in the layout of great areas will produce an effect which will rival in beauty and grandeur anything we can show in Great Britain, even if ornamental adornment seems so greatly to have vanished from our ken.

The *Library Adviser's* appointment was due to the generous initiative of the Carnegie Corporation of New York. It is a novel class of library office, but one trusts it has fulfilled a useful purpose. The Adviser was left to work out his own programme, which in the early stages of probing a path consisted in utilizing his experience in building design and book selection. The appointment of competent library staffs, itself an advisory function of the Council, soon, however, superseded special need for bibliographical help. What did emerge in course of a short time was the urgent quest for the speedy location and reproduction of publications and periodical articles. The utilization of normal channels for this purpose proved too slow : Aslib has since greatly speeded its service but other means adopted took many months or even a year. In the meantime the Council's office was moved to Gordon Square in University of London territory and the Adviser found himself gloriously placed between the library in the Senate House and University College Library. The latter is one of the richest in the country in periodical publications appropriate for academic research work overseas and the Adviser is a Fellow of the College able to tap its resources with some knowledge of their value from his early training in the library. The Librarian of the University of London serves an institution which has taken a vital part in these new overseas ventures and he and his staff have developed a microfilm and photostat installation which was generously placed at our disposal at a relatively low cost. Both libraries themselves contain well over a million volumes. Thus a walk five minutes one way located a high proportion of publications required by isolated workers in areas far removed from adequate book resources, and only five minutes the other need the volumes be taken for reproduction. Mr. Pafford has not only facilitated this process, but he has always given a cordial and helpful reception himself to librarians from overseas, whilst Mr. Wilks also deserves special recognition. The Royal Society of Medicine, the Science Library and Aslib have all done their best to supplement these efforts and so have a large number of most willing Special Libraries up and down the country, a fact of particular interest to members of Aslib. Thus a few weeks now normally produce what formerly might have taken many months.

The keynote is service to just a few institutions only so that there is no waiting list and the Adviser and his secretary have been able to amass a detailed knowledge of likely whereabouts for help. Not only microfilms but photostats and the actual tracking down of needed books have played a part. The number of microfilms thus supplied is already 900, added to 340 photostats and a considerable number of original works.

The West Indies wanted 150 volumes of Caribbean interest, the Sudan 84 articles on the Fashoda incident, often requiring patient ingenuity in their unearthing. The help given by the National Central Library and the National Book Centre has been substantial.

With all this, a friendly and kindly personal intercourse has emerged. The Library Adviser and his wife have visited Jamaica, Sierra Leone, the Gold Coast, Nigeria, Kenya, Uganda, the Sudan and Malta and in return for the great hospitality shown the overseas folk find a happy *pied-à-terre* not only in Gordon Square but at one's own home in the Surrey country.

Conclusion. The libraries described are already the capital collections in their respective areas and may well become world famous in course of time. Assisted in most cases by copyright deposit or systematic government gift, they are already national libraries. In such a short time their achievement is splendid and must surely be a landmark of solid and permanent worth in an age when so much seems to be transitory and destructive.

THE SCOPE OF INFORMATION WORK IN INDUSTRY

By A. R. Smith, B.Com.

A lecture given to the Aslib Senior Course for Information Workers, 25th to 28th February, 1954, at the Department of Scientific and Industrial Research

I THINK I should at the outset explain something of the origin of this paper, and how it came to be written. As some of you may be aware, an article appeared in the issue of *The Engineer* for 13th February, 1953, on 'Library service for industry'. In many respects it was a very useful and informative article, but at one point it claimed that 'the activities of an information department usually revolve round the library', the inference being, of course, that in information work the librarian is the 'king pin'. As I disagreed strongly with that view, I wrote a letter to the editor pointing out what I regarded as an error in the article. Somewhat to my surprise a long correspondence ensued, and showed two rather striking features. The first was that the point I had raised was sidetracked, and there developed an almost bitter argument as to whether or not there is any difference between a librarian and an information officer. The second feature was that nearly all of the correspondents were engaged in technical information work, and almost without exception they assumed that no other kind of information work exists.

I take this correspondence as my text, and I am concerned throughout this paper with two questions, namely :

(1) Is it true that the librarian is the sun around which information work revolves ?

(2) Is it true that no information work of any consequence exists outside the technical field ?

As this is not an instalment in a murder thriller, there is no point in keeping you in suspense. I tell you at the outset, therefore, that my answer to both these questions is a most emphatic No.

The nature of information work

Let me start by defining briefly what I regard as information work in industry. Many definitions have been given, but for my purpose I prefer to choose a simple one of my own. I would say that it consists in the provision of information and advice as a specialized function in a business organization. As such it is a natural outcome of growth in the size of business units, and of increasing specialization. Past a certain point there is an advantage to be gained by setting up a special section or sections devoted to supplying information and certain types of advice to other parts of an organization.

Various main activities of an information department can be distinguished. The first is the collection of information. In this activity a knowledge of sources is the first requirement. The next main activity is the organization of the information collected. By that I mean the processes of selecting, abstracting, classifying, indexing and filing. All of these taken together form a common body of what may be called the methods or techniques underlying information work. The third main activity is the dissemination of information in the form of abstracts, cuttings, bulletins, reports and the like.

It is sometimes suggested that these three activities cover all of the activities of an information unit. There are, however, two others which are sometimes found. The first consists in interpreting the information collected in the light of the problems of the firm. The second is the provision of an advisory service based on such interpretation.

Levels of activity

The activities of an information unit may also be looked at from a rather different point of view, namely the various levels of activity at which a unit may operate.

The simplest level is represented by the work of a lending library which is concerned only with the acquisition and loan of books. This is a level so primitive that it is hardly found in industry.

At a slightly more advanced level there are the activities of a central filing section, which is concerned with indexing and filing documents and issuing them on requisition. This is a rather more advanced level because greater knowledge and expertness are required to analyse and index the documents.

At the next level material is selected for circulation. Here a critical faculty is required in selecting and circulating information in accordance with the pre-determined requirements of individuals, as well as a wide knowledge of their interests.

Fourthly, sources of information may have to be tracked down and advice given on the selection of sources. Many libraries in industry are good examples of operation at this level.

Fifthly, problems may be studied and a résumé of relevant information provided in the form of a report.

At a more advanced level still problems may be studied and events and trends may be interpreted.

Following on from that level, advice may be given in connection with policy decisions, or suggestions may be made for future action.

Finally, the personnel of an information unit may themselves take part in policy discussions.

There is thus a very wide range of levels of activity. I shall return to this aspect later. In the meantime I would like to draw your attention to one important point. It is that a knowledge of what I have called information methods, or techniques, is an indispensable tool in much information work, but it is only a part and not necessarily a very important part of the work as a whole.

These techniques are, in fact, of different significance at different levels of activity. In the most primitive levels hardly any call is made upon them at all. In the middle levels some or all of the techniques lie at the foundation of information work. In the highest levels they are of insignificant importance.

But the techniques are of different significance, not only at different levels of activity but also in different types of work, namely technical, techno-commercial, commercial, statistical, economic and so forth. To illustrate this second point it is necessary to discuss briefly the application of information work in these different directions.

Technical information work

In the technical function there are many forms of information unit, but one fairly common form. It has grown out of the need of research workers to have access to a vast accumulation of well-documented technical information. The function of many technical information sections is to meet this need both in the form of current awareness and also in response to *ad hoc* requests for information. In this type of work more or less all of the techniques are essential. If the unit is a small one it will often take the form of a technical library, with a technical librarian as head. If it is large, the library becomes only a part of the section and the head of it is not so much a librarian as a scientist. This, of course, leads us straight into the controversy over the librarian versus the information officer in technical information work. I would hesitate to be dogmatic on this issue. I think the boundary between the two may, in some cases, be difficult to draw, but nevertheless I believe a distinction does exist. Certainly to my mind the distinction between a scientist information officer and a non-graduate librarian is perfectly clear. I can also see a distinction between the scientist turned librarian who is absorbed in the techniques of collecting, indexing, filing and so forth, and the scientist who is responsible for the operation of a library but who delegates such work to others and concentrates on the problems of the research personnel whom he seeks to assist. In the correspondence in *The Engineer* to which I have already referred, Mr. Farradane, supporting the distinction between the technical librarian and the technical information officer, claimed that the latter was a user of the service he provided, and with this view I am in agreement. In the last resort I think that the difference between the technical librarian and the technical information officer is essentially a question of attitude of mind. If the head of a technical information unit, based on a library, regards it as his main function to be an expert in library techniques, he is never likely to reach into the higher levels of activity of which an information officer is capable. That is just what the technical information officer seeks to do, and when he succeeds he provides a far more imaginative and valuable service.

Two other types of technical information service which may be noted in passing are those concerned with patents and with engineering information. The latter especially is a fairly new development. Engineers in general have not the same tradition as chemists and physicists of searching existing literature, but in some firms they are beginning to realize its advantages. This is a rather different field from the general run of technical information services, but broadly the same considerations arise.

Other types of information work

From information work in the technical function I turn to its operation in other functions. As I have said, it is a popular fallacy among many technical information workers that theirs is the only kind of information work. This fallacy must be demolished.

It is common in discussions on business organization to think of the total activities of a business unit as being divided amongst a number of functions. These functions vary, but a common division is into research, production, purchasing, sales, publicity, finance, personnel, and development. I know of no natural or man-made law which states that only technical personnel require an information service, and it is interesting to speculate on how this popular misunderstanding amongst technical information workers has arisen. For what it is worth, I give you my own explanation. Technical information work depends greatly on techniques, and is nearly always intimately connected with a library. Librarians and technical information workers meet at conferences. A large number of problems which they discuss are concerned essentially with library techniques and are of no interest to most of those who work in the non-technical field. The latter would be bored to distraction at such conferences, and in consequence they do not attend. Their absence is taken by those who do go to the conferences as a sign of non-existence. I can assure you that, in fact, they exist in very large numbers.

It is quite impossible for me to give you a comprehensive account of the different types of non-technical information units and their activities. I must drastically simplify and so all I propose to do is to give a broad outline of three types, which are logically distinct but between which there is considerable overlapping at their boundaries.

The first type is concerned with commercial and industrial information. The main function of such units is to keep in touch with commercial and industrial developments of interest to the company of which they are a part. Their range of activities and interests varies with those of the company. It may be restricted to a small section of home industry, or spread out into commercial and industrial developments in many industries and in many countries.

As regards type of information, they are normally interested in the activities of competitors in relation to products, processes, new product lines and so forth ; in the activities of existing and potential consumers ; in the supply of and demand for raw materials ; and in general commercial information, such as tariffs, trade agreements and market opportunities.

Such units draw both on private sources of information, which are often extremely extensive, and also on public sources in the form of newspapers, financial publications, journals, surveys, etc.

The second type of unit is concerned with economic work. The function of such a unit is to investigate general economic conditions in the regions in which its company operates. Such a department helps to combine many opinions on business conditions and all pertinent information and opinions on economic prospects are brought to the attention of the appropriate personnel. The organized and centralized study of economic trends is an effective way of establishing a common basis of fact and understanding for company planning at all levels.

There are numerous forms of application of this type of work. For example, it may be devoted to the preparation of special reports and other assistance to top management ; to sales forecasting and budgetary control ; to market research covering both sales and purchases ; and to a wide range of problems in the financial, personnel and development functions.

Departments or sections undertaking this type of work enjoy a variety of names. In most cases the work is substantially the same, but they may go under such names as Economics and Statistics, Economics, Information and Statistics, Economic and Statistical Analysis, Market Research, Intelligence and Research, or Intelligence. In most cases they are responsible to top management and they are rarely found in small companies. In such companies departmental heads either do the best they can for themselves, or rely on outside agencies such as the *Economist* Intelligence Unit.

The third main type of non-technical information unit is concerned with statistical work. There are two sub-types, according to whether they are concerned with what may be called ordinary figure work on the one hand or with mathematical statistical techniques on the other. If they are of the former kind they may be expert in dealing with those statistics which are external to the firm, and which relate, for example, to production, trade, consumption, the National Income and so forth. Such units are often found in connection with economic and commercial information work. Another variant is a combination of external and internal statistics. Statistical units dealing primarily with external statistics may operate as a liaison with Government Departments on such inquiries as the Census of Production, the Census of Distribution and the Ministry of Labour wage enquiries. It is but a short step from this to other statistics of a firm.

As regards mathematical statistical work, there has been a rapid extension in the application of mathematical statistical techniques to business problems of recent years. In some cases such work is performed as a highly specialized service, such as in the application of quality control, which has, of course, nothing to do with information work. Nevertheless, certain applications of these techniques are often found in information or intelligence departments.

Differences between technical and other types of information work

This brief glance at some types of non-technical information work is perhaps sufficient to enable us to draw some conclusions on the differences between technical and non-technical information work.

The first difference is in the nature of the sources of information. I do not want to discuss these in detail because they have been covered in earlier lectures. I merely want to make the point that the sources of non-technical information are far more diverse and scattered, and also much less well organized. There is, for example, in non-technical information work nothing comparable to the technical abstracts which underlie so much of technical information work.

The second difference is in the degree of permanence of records. The pattern of industrial, commercial and economic life changes much more rapidly than does the technical one. Much information in the non-technical field is of purely ephemeral interest. It is also much more difficult to classify. As a result of these differences, indexing and filing methods employed in non-technical information work are much more rough and ready and far less elaborate. There is a need for the incessant pruning of files.

The third difference is that non-technical information departments enter to a far greater extent into the interpretation and application of the information they collect. This is especially so in economic and statistical work. They may do so in fact to such an extent that they lose almost all contact with library techniques. They spread out into quite different fields.

The three major differences between technical and non-technical information work carry with them two rather important implications. The first is that library techniques are of much less significance in non-technical information work, the point that I made earlier and have been seeking to illustrate. The second implication is that it has become almost impossible to define the limits of the functions of information departments.

The limits of information work

This second implication is of sufficient importance to merit a brief discussion. It is again a difficult and complex issue which it is essential that I should simplify.

A technical information unit is usually, and basically, a literature reference service for research and other technical workers. It is concerned with a vast body of well-organized technical knowledge, and its basic problems are concerned with keeping track of, and supplying, such knowledge when it is needed. Primarily, however, it is concerned with supplying facts as facts. In some cases the technical information officer provides a more enlightened and useful service, but he never carries his functions into actually undertaking research in the laboratory or into solving the practical problems of engineers. Thus the functions and the scope of technical information departments are reasonably well defined.

On the non-technical side the picture is completely different. The field of operations is very much wider and the functions extremely diverse. The boundary between supplying information on the one hand, and actually using it on the other, is far more hazy.

I may perhaps illustrate this point by a few examples. In the commercial field, for example, an information unit may be established for the purpose of assisting a purchasing department. It may concern itself merely with the collection and dissemination of market facts. It may go further and make market studies. It may go further still and tender advice to those responsible for purchasing policy. Equally, on the sales side, an information unit may merely collect and supply facts, it may undertake market research preparatory to the drawing up of sales budgets, or it may undertake customer research.

In the more purely industrial field, an information unit may collect and supply facts. It may use these in the preparation of industry surveys, or it may undertake actual market research or commercial development investigations.

On the statistical side a statistical unit may merely be a repository of trade and industry statistics. It may, in part, be responsible for the internal statistics of the firm. It may act as a co-ordinating unit for top level management statistics, or it may undertake the application of statistical techniques to problems of other departments.

On the economic side the information unit may again restrict itself to the collection and dissemination of facts. Alternatively, it may undertake the interpretation of broad economic trends. It may undertake market research and business forecasting, or employ its skill in the application of economic analysis to the problems of several other departments.

In the light of this great diversity of function, it is impossible to define any boundary to non-technical information work, because it spreads imperceptibly from fact collection to fact interpretation and use, and to the determination, jointly with other experts, of policy. In one organization an economics unit may be a separate department, in another it may be an integral part of a functional department. The same applies also to commercial, industrial and statistical units. An information department may only collect facts, and leave it to other departments to interpret and use those facts. It may undertake both collection and interpretation. Alternatively, both activities may be part of a functional department, and not be regarded as information work. There is in truth no common pattern, and the point at which the work of an information department should cease and that of other departments begin cannot be defined.

Types of information units

It may perhaps be useful at this stage to attempt a rough classification of the various types of information unit which may exist.

Almost certainly the type which is largest in number is the straightforward library. One variant is the general library with the non-graduate librarian. It is found most frequently in small firms, trade associations and the like. It is too primitive for the average medium or large firm. A second and more important variant is the technical library with a graduate librarian. Its functions are broadly the same as those of the general library, but it provides a much more advanced form of service. It has, I believe, been sometimes claimed by non-graduate librarians that they are better able to provide a service of technical information than the technically trained librarian, on the grounds that the latter is more likely to be biased. I do not know what such nonsense means. One might as well claim that when one is ill one should not send for a doctor because he might be biased in his diagnosis.

The second type of unit is the technical information section. This is a more advanced form still on the technical side. It comprises a technical library plus other services as well, and it leads to the emergence of the technical information officer. In those units in which the technical information officer's functions are undertaken the librarian becomes secondary.

The third type of unit is the commercial and industrial one. As I have already suggested, such units are very varied, both in form and function. They may be fairly simple, dealing with facts only, and they may undergo a development analogous to the one I have outlined on the technical side. They may provide a service for several commercial departments, or be a specialized section in a commercial department, in much the same way that a technical information section is often part of a research department. They may or may not contain a library in their make-up.

The fourth type of unit is that concerned with economics and statistics. Again there are many varieties. Economics and statistics may be found together, or alone. They are seldom concerned only with the supply of facts. Again they may or they may not contain a library as part of the service they provide.

Finally there is the composite unit which is a combination of various types. They show in practice a very great variety of activities.

In the really large firm information work is usually far too great in extent to be undertaken by a single department, and it is therefore broken down. This is particularly desirable if an information unit attempts to rise to the highest levels of activity. It would need a superman to undertake this task in both the technical and the non-technical functions.

Types of staff required

The great scope of information work carries with it a need for many different types of knowledge, of ability, and of qualities of personality. Many of those who work in this field must have a knowledge of the basic techniques, whilst others do not require them at all. Up to a point there is room for those who are specialists in techniques, and specialists in that alone, but in the larger firms, at any rate, the scope for them is limited. There the emphasis is much more on other kinds of knowledge. What are required primarily are graduates in science, engineering, the arts, economics and statistics. Some of these will need to add a knowledge of techniques, but others will not, especially in non-technical work.

One of the great dangers facing those who come into close contact with the techniques is that in their absorption with such techniques they fail to see that there is anything else in information work. Equally, there is a pitfall for the various experts who do not need to study these techniques. The chief qualities required in them are those of imagination, a critical faculty, good judgment and an ability to focus their knowledge on practical business problems. They are largely freed from the more routine work of collecting and filing information. Their particular pitfall is that they may become so immersed in the problems of interpretation that they overlook the need to build on secure foundations by providing for the adequate collection of the information upon which their interpretation is based.

These two quite different types of worker, if they fall into their respective pitfalls, are poles apart. They have nothing in common and they talk a different language. In between there is room for many different types of staff, but it is a fairly safe generalization to make that those who are primarily scientists, economists and statisticians, but who lack the qualities I have indicated, get left on the more routine types of work.

Conclusion

In conclusion let me return to the two questions which I posed at the outset. The first was as to whether or not all information work revolves round the librarian. I have, I think, substantiated my claim that this is an altogether fanciful picture. It may be a true one in small information units, and of some technical information sections in medium and large firms. It is untrue as a general proposition, especially in the large firms, and it is a legend which must be destroyed.

It is perhaps of some interest to consider for a moment what has made it an untrue picture. One cause, I think, has been the advent of scientists as technical information officers, and also their entry into techno-commercial information work. But even more important, I think, has been the impact of economists, economic statisticians and mathematical statisticians. There has been a marked increase since the war in the type of information work they undertake and it is still increasing. Where it exists, as it does now in a great many companies, it is right outside the competence of the librarian, who, in effect, is called upon to provide a service to these experts.

In the future development of information work, I think that the scope for librarians who have no other qualifications is a limited one. In the technical field the non-graduate librarian is simply not capable of providing the kind of service which is increasingly required, especially in the large firms which have a substantial technical background to their activities. Whether or not the scientist librarian can adequately fulfil the functions of the technical information officer largely depends upon his personal qualities and outlook. If he regards it as his function to be primarily an expert in techniques I would not think that his chances are very bright.

In non-technical information work I think that the librarian, either non-graduate or graduate, is not in the running for the most responsible positions. All of these are likely to be held by scientists who have gone over to techno-commercial work, by economists, and by statisticians.

I am conscious that there are many librarians among you, and that both now and earlier in my talk I have said some fairly hard things about librarians. I would, however, ask you to believe that these remarks are not inspired by ill-will or by a wish to be offensive. I am far too familiar with the exceedingly valuable work of scientist librarians, including the one in my own Department, to wish to adopt that attitude. What I have tried to show you is that information work in all its ramifications covers an exceedingly wide field and needs many different types of knowledge and skill. The skill of the librarian is one of them, but it is not the only one. In some information units it is the predominant skill, but in others it is subordinate. If there are any librarians here to-day who still doubt this I would ask them a simple question. At what stage in a librarian's training does he, or she, acquire the knowledge necessary to undertake technical, techno-commercial, commercial, industrial, economic and statistical investigations in the various fields that I have mentioned ?

My second main task throughout this talk has been to destroy the myth that there is no information work undertaken outside the technical field. After what I have said I do not think that any further proof of the existence of non-technical information work is needed. If, however, you feel inclined to take much of what I have told you with a grain of salt then I would refer you back to the talks to which you have already listened from Mrs. Abrams and Mr. Liston. I call on them as witnesses and rest my case.

SOURCES OF RUSSIAN ECONOMIC INFORMATION*

BY G. RUSSELL BARKER, M.A., M.COM.

Birmingham, 4th December, 1953

THE task of summarizing the possible approaches to the gathering of factual material on modern Soviet economic problems is no light one, since the sources which must be covered are most diverse. Necessary information on almost any topic may be found scattered in a multitude of often rather unlikely books and papers, and it may be the case that key data are found to be altogether unobtainable by the researcher.

It would, however, be quite wrong to suppose that, because of these difficulties, work on Soviet economic material is either impossible or unrewarding. The experience of some workers in Europe and America over many years is evidence that much that is useful and illuminating can be learnt by meticulous study of original sources coupled with a sound methodological approach.

It must be stressed at the outset that the investigator, without a knowledge of the Russian language, is at a hopeless handicap : the amount of economic material translated, though not negligible, is only a tiny fraction of all that is published, and is not always by any means representative. In addition, owing to the scattering of important information in numerous press articles and papers, a great volume of material must be scanned, from which only the trained researcher will be in a position to sieve out the material needed.

Translated material

Articles in translation are to be found occasionally in a considerable number of English-language periodicals, as the reader will know ; translated articles appear more regularly in *Soviet Studies*,[1] and in the *Anglo-Soviet Journal*.[2] Amongst journals published in Europe, we may mention the French *Problèmes de Planification*[3] and the former *Cahiers de l'Economie Soviétique* and *Economie Soviétique et Economies Planifiées* as falling within this category.

To a rather different group belongs the weekly *Current Digest of the Soviet Press*[4] from the United States. This contains extracts or complete texts of articles on a wide variety of themes appearing in Soviet newspapers and other periodicals, each number normally containing some items under the headings of 'State and Law', 'Trade Unions', 'Industry', 'Agriculture', 'Transportation' and 'Trade'.

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* The reader is recommended to refer back to Dr. A. L. Mackay's companion article on sources of Russian *scientific* information in the May, 1954, issue of *Aslib Proceedings*, (pp 101–110), containing much useful information and sound advice on Russian publications generally, for which, otherwise, we must necessarily have found space. G.R.B.

Particularly useful from the bibliographic point of view are the *Monthly Lists of Russian Accessions* of the U.S. Library of Congress, which almost certainly currently acquires more Russian books (conveniently classified in the Accessions Lists) and periodicals than any other library in Europe or America.

Numbers of popular pamphlets and reprints of State plans and reports, etc., are translated and published, either by the Foreign Language Publishing House in Moscow or, in this country, by *Soviet News*[6]—a Soviet Embassy publication—as are also a number of books proper, of greater or less importance. We may mention, in particular, a notable source of data on the Soviet economy during the late war—N. Voznesensky's well-known book, translated as *War economy of the U.S.S.R. in the period of the patriotic war*, F.L.P.H., Moscow, 1948, 151 pp. Selections from the collected works of Lenin are available in English in a number of editions, and Stalin's collected works are now in process of translation, the first seven volumes having so far appeared in English, published by the F.L.P.H. Both contain a substantial proportion of writings on economic themes. A very few major works of interest to the economist have been translated and published abroad—usually at a very high price, owing to the smallness of the impressions made : as an example, we may cite A. Y. Vyshinsky's *The law of the Soviet State* (Macmillan & Co., New York).

Russian-language material

Turning to Russian bibliographic sources, we should mention first two periodical publications of the All-Union Book Chamber, *Knizhnaya Letopis'* and *Letopis' Zhurnal'nykh Statei*, neither of which are, very unfortunately, currently available, but which are exhaustive and extremely useful for the years covered in funds available for consultation. The library of Birmingham University holds series of both. A bibliographical journal, *Sovetskaya Kniga*, published monthly and containing announcements of new books and reviews is available in Britain.

The periodical *Sovetskoye Gosudarstvo i Pravo* is distinguished by its thoroughly developed annotation of new books, articles and theses, etc., on all branches of law and economics, but those desirous of ensuring as full a coverage as possible of all new works on economic and allied topics (especially works themselves constituting the raw material of research, rather than sources of information on data deriving from State statistics —e.g. publications by trade-union authors on local factory practice) must examine the review sections of a wide variety of T.U. and trade journals, as well as keep an eye on press announcements and advertisements in the newspapers and periodicals relating to new books and brochures.

Availability of Soviet material

What has been said above does, of course, raise sharply the question of the availability of Soviet material on economic questions in this country. It is regrettably the case that far from all the material which one knows to exist and be on free sale in the U.S.S.R. is available in this country. There is not, I think, a unique reason for this inadequacy on the supply side. For a certain number of books, it may be that considerations of security affect the export position, though this is not, it seems, a major factor, since the on-the-spot purchase and personal export of any books on public sale is not obstructed. For the great bulk of unfulfilled orders (and all librarians who have attempted book-ordering from the U.S.S.R. on any considerable scale know that this expression is not inappropriate !), the explanation appears to lie on the one hand in the inadequacy of the (admittedly proportionally very large) supply of economic literature to the enormous demand created by the conditions of planned economic life, coupled with, on the other hand, a low evaluation of the priority which foreign orders should have in the allocation of existing supplies, which appears in the structure, powers and capacity to execute orders of the foreign-trade book monopoly *Mezhdunarodnaya Kniga*. Whilst the supply position is still highly unsatisfactory from the point of view of the foreign academic specialist, it is only fair to note that the situation as regards advance-notices and ordering has improved in the course of the last year or so. Those libraries whose orders are likely to be on a scale justifying it may establish a direct contact with *Mezhdunarodnaya Kniga*,[6] or orders may be placed with the British agents[7] of *Mezhdunarodnaya Kniga*. The French agents[8] of the Soviet organization are also useful sources for book ordering, as they appear to hold larger stocks, though their prices (fixed in dollars) work out rather higher. Both produce periodical lists of recent acquisitions.

The arrangement of exchanges with Soviet libraries is a useful supplementary source for the obtaining of books, the establishment of an initial personal contact being inevitably a great help. The libraries of the Academy of Sciences of the U.S.S.R., especially the Fundamental Library of the Social Sciences (*F.B.O.N.*) in Moscow, are particularly important in this connection. The development of exchanges between university libraries in the two countries should be a valuable future development, and one less likely to suffer from the difficulties of lack of new material to offer on our side than when the exchange is with Soviet central libraries. There are, I think, distinct signs that the future of book-exchanges between learned institutions in the two countries is now rather brighter than it has seemed in the past.

Microfilm is, unfortunately, not a medium yet in use in the relations existing between libraries in the two countries. It is, however, of great usefulness to researchers in this country when obtaining Russian material from other libraries in this country and in other countries of Europe and America. The Library of Congress, for example, executes orders for microfilms of Russian books most expeditiously (their Accessions Lists, incidentally, note Russian books in a number of other U.S. libraries from whom microfilm copies can be obtained, as well as their own). They have, too, films in stock of such items as the *Sobranie postanovlenii i rasporyazhenii pravitel'stva SSSR* (1939–49) (a series—no longer available on order—of Orders and instructions of the government) which every library wishing to provide facilities for research on Soviet material must hold.

The interlibrary loan system works well with the Russian books available in this country. The Russian Union-Catalogue of the National Central Library has records of the holdings of Russian books in all the main repositories of such books in this country—the British Museum, the London School of Economics, the School of Slavonic Studies, Chatham House, Birmingham University, Glasgow University, the Society for Cultural Relations with the U.S.S.R., and other libraries. The seeker after any particular book—particularly one published in the 'thirties or earlier—is, however, not unlikely to meet with disappointment, since even quite major works may well prove to be altogether unrepresented in British libraries. Requests by genuine research workers to examine works otherwise unavailable are occasionally and exceptionally granted by libraries not normally accessible to the public, such as those in the Bank of England or the Foreign Office.

European libraries may be able to fill the gap. The specialist on labour, for example, may turn to the International Labour Office library for help, or the worker interested in financial questions to the French Ministère des Finances, with some hope of sympathetic consideration.

Reliability of data

Before going on to describe the types of sources which may be drawn upon when investigating Soviet economic matters, it will be as well to say something of the reliability of the data to be found in them, since many conflicting or obscure pronouncements have been made (particularly in the popular press) at various times. I should like to quote here the words of one of the best-known writers on the Soviet economy, Dr. Alexander Baykov. He writes : '. . . systematic study over a number of years has convinced me that they [Soviet statistical and other sources] can be used to analyse the economic processes and the economic system of the U.S.S.R. with the same degree of confidence as similar sources published in other countries. Only occasionally and temporarily some statistical data were not published, as, for instance, some information regarding agriculture in the period of collectivization. However, one of the greatest defects of the data published in the U.S.S.R. is the frequent changes in the forms of publication, which make it difficult and at times impossible to draw up statistical tables showing trends of evolution.'[9] Personal experience confirms the validity of this view. Data, when published, may be accepted as being real figures, reflecting the calculations used operatively by planners and economists. Any system of dual account-books, one set for real working and one for show, would be a deception impossible to maintain, and disruptive of the economy. This does not, however, mean that no discrimination is necessary in using the figures published. The very reverse is the case. The researcher must remember that the economic categories used may be different from concepts going by the same name in his own country (e.g. 'National Income') and must check on Soviet definitions ; and these may be extremely difficult to find precisely formulated. He must also beware of the 'popular' use of figures. There is an enormous volume of popular economic literature in the Soviet press—much of it written by persons with qualifications far from those of the best writers, who may, through ignorance or carelessness, or the temptation to boast, use official figures in a misleading way. The research worker must therefore trace back to the original, official source of any figure he may think dubious. He must also keep in the forefront of his mind the fact that a great deal even of official material is of a campaigning character, designed to stir the reader to action, either by encouraging him through accounts of successes, or shocking him out of apathy by reports of gross failures. Examples should never be regarded as average or typical without explicit information on the point.

Finally; it must be pointed out that the volume of data released is now far less than in most countries with whose statistics our economists are accustomed to deal, since much information on the national economy is classified as secret or not for publication on security grounds. (Where, incidentally, such information has come to light, as in the case of the statistical supplements to the annual national economic plan for 1941, it has proved to be consistent with the data officially released for publication at the time.)

Sources of economic information

To give a detailed exposé of the many sources of economic information useful to the specialist in every branch of economics would, of course, be an enormous task, and one quite beyond the scope of this paper. I shall, therefore, attempt only to draw a broad picture of the types of source which can be used, and mention some of the main specific sources within the types.

Something must be said to begin with about newspapers. Some 8,300 newspapers have a circulation of 41.7 million (1952). Of these, 25 are All-Union (i.e. 'national') and about 125 Republican. The remainder are various kinds of local papers. Something like a quarter of all newspapers circulate only within the factories and State or collective farms in which they are published. Papers are, of course, published in the other languages of the U.S.S.R., as well as in Russian. There are something like 75 mass-circulation Russian-language newspapers.

Of these newspapers, 17 (all 'national' papers) are listed as available here in the current *Mezhdunarodnaya Kniga* catalogue. I list below eight which are likely to be of economic interest :

Gudok (railways) ,
Izvestiya (general, government organ) ,
Lesnaya Promyshlennost' (timber industry) ;
Pravda (general, Party organ) ;
Promyshlennost' stroitel'nykh materialov (building materials industry) ,
Sel'skoye Khozyaistvo (agriculture) ;
Trud (industry—Trade Union organ).
Vodnyi Transport (water transport) ,

All these newspapers are, of course, the organs of the State or of responsible public organizations, and, therefore, have an 'official' character. They are thus of far greater importance and utility as sources of economic information than, for example, the newspapers of this country. Not only this, but the nature of the Soviet planned economy, with the great stress placed in propaganda on economic questions, makes the researcher's problem not one of searching for economic items, but of sorting out what he really wants from a vast amount of such material more or less useless from his specialist viewpoint save as background material helping to build up a correct general impression of the nature and operation of the economic system.

As well as editorials and news items, all these newspapers from time to time print valuable articles by leading specialists or responsible officials on topics lying within their respective fields of competence, plus the plan-fulfilment reports of the Central Statistical Board, special statements and plans of the government, and similar material of prime importance.

Soviet newspapers well merit the soubriquet attached to them in the U.S.S.R.—'collective organizers'—and the British reader unaccustomed to them must always bear in mind what has been said earlier on the 'campaigning' nature of much of the literature—most marked in these publications for mass consumption.

Turning to journals, we find a total publication of about 1,500, more than two-thirds of which appear in Russia. Two hundred and twenty Russian-language journals are currently listed as being available on order in this country. Of those likely to be of interest to economists, we may list :

Vestnik Statistiki (statistics) ,
Voprosy Ekonomiki (general) ,
Planovoye Khozyaistvo (general) ;
Sovetskie Profsoyuzy (labour and trade union) ,
Sovetskoye Gosudarstvo i Pravo (law) ;
Finansy i Kredit SSSR (finance) ,
Kommunist (Party organ) ,
Vestnik Moskovskovo Universiteta, seriya Obshchestvennykh Nauk (University social science journal) ,
Vestnik Akademii Nauk SSSR (general Academy of Sciences Journal) ,
Vneshnyaya Torgovlya (foreign trade) ;
Sovetskaya Torgovlya (internal trade) ,
Zhilishchno-Kommunal'noye Khozyaistvo (housing and municipal amenities) ,
Lyegkaya Promyshlennost' (light industry) ;
Morskoi i Rechnoi Flot (sea and river transport) ;
Neftyanoye Khozyaistvo (oil) ;
Tekstil'naya Promyshlennost' (textiles) ;
Ugol' (coal mining)

The last few listed represent a sample of the more important of the considerable range of trade journals available, which contain mostly material of a technical nature, but sometimes include economic data not readily available elsewhere.

It need hardly be said that the quality of the articles printed in these journals is as uneven as in any other country, but the reservation must be made, where the student of the Soviet economy is concerned, that it not infrequently happens that the intellectually poorer article is more useful than that of high quality, if the weak author has made up for his paucity of original thought with a plethora of statistical material drawn from a hitherto unutilized official source !

It is convenient to consider separately a number of what we may term 'official periodicals', published in various formats. The main examples of these are : *Vedomosti Verkhovnovo Soveta SSSR*, devoted to the publication of Laws passed by the Supreme Soviet of the U.S.S.R., Decrees of its Presidium, and similar matter. It is published in the sixteen languages of the constituent republics of the Union, formerly in newspaper format, but now as a series of brochures. A high proportion of the total space is devoted to listing the names of those awarded various Orders and decorations. In addition, all material of general interest is classified and published in book form from time to time. *Sobranie postanovlenii i rasporyazhenii pravitel'stva SSSR* : this contains, in numbered sequence, the published Orders and instructions of the Soviet government. A similar publication is produced relating to the legislation of the Russian Republic. Neither has been available here since 1949. *Zasedaniya Verkhovnovo Soveta SSSR* ; stenographic reports (published in sixteen languages) of sessions of the Supreme Soviet of the U.S.S.R. (also available for the R.S.F.S.R.), published in book form.

Supreme Court Rulings and official publications of various ministries are published, but are often not available, though references to their contents are frequently met with.

To conclude my remarks on periodical publications, I would only add that, however useful they are to the researcher, they are likely to prove the bane of a librarian's life owing to their habit of frequently changing title, being fused with one another, separating again, ceasing and recommencing publication in reflection of the organizational changes affecting the State departments, etc., whose organs many of them are ![10]

On books and monographs, it is difficult to say anything very informative in so small a compass. The volume of book- and pamphlet-production, in so populous a country whose people have become generally literate in the recent past, is, of course, immense. It has been stated that between 1918 and mid-1952, a print of 14,500,000,000 copies has been made of 1,077,000 titles in the U.S.S.R. Of this huge total, a higher proportion than the unprepared Western observer would expect have been devoted to economic and what might be called 'social science' topics, though to give an accurate quantitative evaluation is impossible, owing to changes made in the somewhat imprecise report-categories.

The data on p. 176 will, however, give some indication of the scale of such publishing.

Book-production in the U.S.S.R. in 1940 (*a*) (*thematic breakdown*)[11]

Thematic heads	*Printed units*	*Thousand copies*
Political, social and economic literature	7,432	88,238 (*b*)
Industry, transport, communications	12,381 (*c*)	35,455
Agriculture	4,127	23,909
Press, bibliography, reference books	973	4,403
Fiction, drama, poetry	3,603	46,648
Other	15,620	247,923
Total	44,136	446,576

(*a*) excluding the Baltic countries.
(*b*) first place by number of copies printed
(*c*) first place by number of titles published.

More recent data shows an even higher (and still increasing proportion) of books on social, political and economic themes in the total. Nearly one-third of all books printed in 1952 (243,500,000 copies) fell into this category (compared with just over 185,000,000 copies of works of imagination, etc.), a rise of 40 per cent over the previous year, compared with an 11 per cent overall rise in book-production. It must of course be realized that by no means all these are substantial works of erudition. The majority is certainly made up of pamphlets of an ephemeral nature and pamphlet-type reprints of major policy-speeches by government leaders, resolutions, decisions, plans and other such material.

All that has been said regarding the lack of a necessary correlation between quality and usefulness to the research worker as far as periodical articles are concerned applies equally to books. Soviet economic books, on the whole, compare poorly with our own from the point of view of convenience in use, because of the small proportion of them equipped with a reasonably comprehensive (or indeed any) index.

Works of reference

To conclude this short survey of the field, something should be said of works of reference. Statistical hand-books are available for the period up to 1938, since when none have as yet been published for sale to the public, and the investigator is obliged, if he wants one, to compile his own—a task involving a great amount of labour and effort, meeting with many difficulties, but, on a modest scale, not impossible.

In the years preceding 1937, for example, a number of general handbooks (published under the title *Socialisticheskoye Stroitel'stvo SSSR*, . . ., with the date in apposition) and specialized collections of branch statistics (for example, on labour, sown areas, collective farms, etc.) were published, some annually and some occasionally. In 1939, smaller volumes were published (general and agricultural) with data for the years 1913, 1929, 1933 and 1937 or 1938, as well as several lesser works. Statistical tables were published, too, as appendices to the published reports of the first and second Five-Year Plans in the period preceding the war.

Census-reports of the censuses of 1926 and 1939 have been published, not complete in the latter case, publication having ceased as a result of the outbreak of war.

A handy work of reference in which to seek precise definitions of statistical and accounting categories to be met with in Soviet economic practice is *Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike*. Both editions (1944 and 1948) should be consulted, as considerable revisions have taken place. The 1944 edition has been photographically reprinted by the American Council of Learned Societies.

Various handbooks for different categories of responsible workers, mostly collections of laws and regulations currently in force, are periodically reprinted in up-to-date editions (e.g. *Spravochnik profsoyuznovo rabotnika* for T.U. officials, *Spravochnik sovetskovo rabotnika* for local government officers, *Spravochnik predsedatelya kolkhoza* for collective farm chairmen), which, when obtainable, form valuable supplements to the legal codes and commentaries on them and other published legal material relevant to the economist's interests.

Encyclopedias and dictionaries can provide useful background material on occasion. We may mention in particular the *Bol'shaya Sovetskaya Entsiklopediya*, whose second edition is now in course of publication (and whose final special volume of the first edition—entitled 'U.S.S.R.'—is particularly useful), the *Sel'skokhozyaistvennaya Entsiklopediya,* devoted to agriculture, which is sometimes helpful in clarifying points of statistical practice, for example, and the recent *Eksportno-importnyi slovar'*, devoted to products entering into foreign trade.

Amongst maps and atlases, the famous *Bol'shoi Sovetsky Atlas Mira* is remarkable for its excellent attention to economic geography (distribution of natural resources and of industry) and high quality, though now rather outdated.

Conclusion

In conclusion, I would say this : the availability of data on the workings of the Soviet economic system at the present time is such that very careful and scrupulous analytical work is essential on the part of every individual student of current material, within the framework of a sound methodological approach, in order to assemble and work up a file of factual data as the raw material on which to make his deductions as to the processes at work within the Soviet economy. The fact that this raw material is not presented him in 'pre-digested' form necessarily to some extent dictates the nature of the research which can be done in this field, since the process of locating the material on which to work is so time-consuming. It seems, however, that there are at least some signs of a change towards greater liberality in the release of statistical data and, if this should materialize, the research worker in the field of Soviet economics may, more than at present, devote his attention to questions more like those preoccupying his other economist colleagues and less like those confronting the detective. . . .

While the present situation continues without any substantial changes, however, there are several things which could and should be done to ameliorate things. British workers in this field, for example, are at a disadvantage in two respects compared with their American colleagues from the point of view of the availability of original sources on which to work. One is financial ; the other lies in the fact that no organized on-the-spot purchasing in Russia of books for British libraries, to be used for academic research, is taking place. Such a system, if implemented, thus making readily available to the British worker what is now unobtainable or only mainly obtainable at considerable trouble and expense in microfilm form from the United States, would, I am convinced, do much to raise the level of Soviet economic studies abroad generally.

Lastly, the scope for the extension of book-exchanges between this country and the U.S.S.R. is surely great. Indications are not lacking that there are those in both countries who want very much to increase such mutually-valuable contacts. Not unexpectedly, it is in the field of the natural sciences that most of this activity is displayed, but it would be sad if the social sciences were to be forgotten or neglected in such exchanges, for despite—or rather, even, because of—the differences between the two economic and social systems, such 'inter-traffic' is vital. Those concerned with the world of books and libraries can do much to help the specialists in the field (and through them the public at large) in trying to gain this informed understanding of the workings of so different a system by promoting in every way such exchanges of the literature.

REFERENCES

(1) Published by Blackwell, Oxford, for the Department for the Study of the Social and Economic Institutions of the U.S.S.R., University of Glasgow

(2) The organ of the Society for Cultural Relations with the U.S.S.R., 14 Kensington Square, London, W.8. The Society's Social Science Section also publishes an occasional duplicated *Bulletin*

(3) École pratique des Hautes Études, 6e section , 167 Bde. Saint-Germain, Paris, 6e.

(4) Published by the Joint Committee on Slavic Studies, 413 West 117th Street, New York 27, N.Y., U S.A.

(5) *Soviet News*, 3 Rosary Gardens, London, S.W.7.

(6) V/O 'Mezhdunarodnaya Kniga', Kuznetsky Most 18, Moscow, 200.

(7) Collet's Export-Import Dept , 45 Museum Street, London, W C.1.

(8) Maison du Livre Étranger, 9 rue de l'Eperon, Paris, 6e.

(9) A. Baykov. *The development of the Soviet economic system*, C.U.P., 1947, p. xiv. See also his articles in *Bulletins on Soviet Economic Development*, Department of Economics and Institutions of the U S.S R., Faculty of Commerce and Social Science, University of Birmingham, Series 1, No. 1, p. 7 , and Series 2, No. 8, pp 1–7, 29–39, for examples of the critical evaluation of Soviet data.

(10) The English-speaking reader interested in obtaining further statistical information on the Soviet press may consult B. I. Caplan, 'The place and function of the press in Soviet Society', S.C.R., *Bulletin of the Social Sciences Section*, No. 3, pp. 12–13

(11) Summarized from A I. Nazarov, *Ocherki istorii sovetskovo knigoizdatel'stva* Izd-vo 'Iskusstvo', M., 1952, p. 217. The Russian-speaking reader interested in further information on this subject may also consult especially pp. 125, 169, 190–191, 281.

MEMBERS' FORUM

AERONAUTICAL LIBRARIES—SAMPLE SURVEY

By P. S. Walkins, A.L.A.
Librarian, British European Airways

As a result of certain difficulties, the British European Airways library service was recently faced with economies which not only affected future growth but also the day-to-day work.

It behoved us, therefore, to find out something about the organization and services of other aeronautical libraries. A questionnaire was accordingly prepared and fifty-eight librarians from those which belong to the Aslib Aeronautical Group were canvassed.

Of the fifty-eight, nine replied with excuses, i.e. four have libraries which are intrinsic parts of other activities (publishing, research laboratories, or larger library systems), two have very small ones, one was too security-conscious, one was in the midst of recataloguing and one librarian did not like the idea of making comparisons. Twenty-one replied more or less fully and from these the figures quoted below have been compiled.

Question 1 merely identified the library.

Question 2 asked for the department of the concern which ultimately controls the library. Answers to this were as follows :

Controlled by :	*No. of libraries :*
A library committee ..	3
A Director of the firm	4
A Departmental Head ..	8
A Sectional Head ..	4
No information given ..	2

Question 3 (*a*) requested the size of stock :

Size of stock :	*No. of libraries :*
Under 9,999 items ..	3
10,000 to 14,999 ..	9
15,000 to 19,999 ..	2
20,000 to 24,999 ..	2
25,000 to 29,999 ..	2
30,000 to 39,999 ..	1
Over 40,000	1

One gave *book* stock only (2,500). Bound periodicals have been counted in 'size of stock' where they have been specifically mentioned.

Question 3 (*b*) asked for additions to stock per year :

Additions :	*No. of libraries :*
Under 499	1
500 to 999	4
1,000 to 1,999	7
2,000 to 2,999	3
3,000 to 3,999	1
Over 4,000	2

Of the other three libraries, one adds 100 *books* per year, and two libraries did not quote any additions.

It is interesting to note that eighteen libraries added 30,948 items, an average of 1,710 approximately.*

Question 4 requested details of any items of stock other than books, reports and pamphlets. Under this heading only one library reports a collection of lantern slides (1,000).

Some of the replies included Air Publications, Standard Instruction Sheets, Aircraft General Standards sheets, Trade catalogues and various proprietary matter ; where figures were quoted they have been included in the tables to Question 3.

Question 5 asked what library facilities are provided :

FACILITY I. *Lending and Reference :* Offered by all twenty-one libraries. One mentions internal loans only, and another 'reference facilities for members of local engineering societies'.

FACILITY II. *Journals :* All twenty-one libraries take and file periodicals. Seventeen libraries gave figures, one did not, three libraries have journals circulated for them by other units within their organization.†

FACILITY III. *Information researches :* eighteen libraries do these. Three did not reply.

FACILITY IV. *Illustrations collections :* There are four mentioned in replies received ; two general, one of aircraft types and one of persons connected with aviation. However, one of the foregoing is being discontinued in favour of an index to illustrations in journals. Two libraries hope to start such collections.

FACILITY V. *Recent additions lists :* nine issue these weekly, nine issue monthly (one for reports only), two issue them irregularly, whilst one library does not issue any list.

FACILITY VI. *Translations :* four prepared translations, two can have translations prepared within their organizations. Fifteen did not reply.

FACILITY VII. *Photo-copying :* eight libraries do photo-copying, nine can have it done by other units of their firms. No reply from four.

FACILITY VIII. *Maintaining Security file :* This is maintained by six libraries. In five organizations it is maintained by other units. Ten libraries did not reply (for security reasons ?).

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*See also Appendix I.
†See also Appendix II.

FACILITY IX. *Special bibliographies prepared :* These are prepared 'as required' by fifteen libraries. Two do not prepare them. No reply from four libraries.

FACILITY X. *Indexing and Abstracting :* It should be noted first that two of the twenty-one libraries do not catalogue *all* of the items that they add to their stock.

Abstracts of reports and journal articles are made by eleven libraries (one for reports only), six do not make abstracts. Four did not reply.

Indexes of journal articles are made by sixteen libraries. No reply from five.

LISTS : These abstracts and indexes are listed and issued by nine libraries, they are *not* issued by three, and nine did not reply. Of the lists issued : two are weekly, one fortnightly, four monthly and two are irregularly issued. One library actually fully catalogues apposite articles from journals.

NOTE : One library mentions maintaining large fully cross-referenced information files, circulation of government instructions and Air Publications amendment lists. Another lists notices of forthcoming technical meetings and issues these weekly. A third prepares the organization's Instruction Books, maintains over 1,700 Air Publications and prepares Parts Catalogues. Only three libraries use micro-material.

Question 6 required the number of staff per library.

No. of staff per library : ..	1	2	3	4	5	6	8	9
No. of libraries :	1	4	5	4	3	2	1	1

i.e. eighty-four persons staff twenty-one libraries.

Extra help is obtained by some libraries for certain work, as follows :

Type of work :	*No. of libraries :*
Typing	5
Cataloguing	1
Interlibrary loans ..	1
Accessioning	1
Duplicating	2
Parcel despatch	2

NOTE : As the answers to the previous question (No. 5) show, a number of libraries have work done for them in other departments within their organizations, thus :

Type of work :	*No. of libraries :*
Circulation of journals	3
Translation	2
Photo-copying	9
Maintenance of security files	5

In spite of this, seven libraries complain of *acute* staff shortage.

One librarian reports, by the way, that in addition to the staff shown, he has a 'lady who keeps the library clean and rolls off the library circular' ! A remarkably dual role ! Surely the lady's not for bruising ?

Question 7 asked what statistics were kept. Six libraries state that they are too busy to keep statistics, one did not reply. However, Appendix I gives a tabulation of those figures which were submitted from the others.

Question 8 requested the annual amount of the book fund to the nearest £50.

Amount of Book Fund	£100–£199	£300–£399	£400–£499	£900–£1,000	Over £1,000	No fixed book fund (purchase as necessary)
No. of libraries :	3	2	4	1	1	10

NOTE : One of the ten libraries with no fixed book fund spent in one year £650 on books, £1,300 on 255 journal subscriptions, with a further £1,500 on Air Publications and photo-copying.

Question 9 asked for the number of books out of total stock which require amendments inserted.

No. of books to be amended :	Under 50	50–99	100–199	300–399	400–499	500–599	600–699	800–899	Over 1,700
No. of libraries : . .	5	2	2	1	1	1	1	1	1

Actually, twenty of the twenty-one libraries investigated deal with amendments, but five gave no figures. No fewer than thirty-six out of eighty-four assistants are engaged in full- (or part-) time amendment work.

Question 10 asked if a record was kept of the number of actual amendments made (other than on the Amendments Record Sheet in each book). Seven libraries keep a record, seven libraries keep no record, seven libraries did not reply.

One library with a staff of five found that one assistant inserted 45,403 amendments in 500 books in one year.

Question 11 required details of any special routines. One library listed 'patents and modifications'. Another maintains 'specification books'. A third mentions 'cutting up of abstract bulletins'. The routines mentioned in the first sentence would normally be part of the amendments service.

Question 12 asked how staff duties were allocated.

Only fourteen out of the twenty-one attempted to answer this question. These fourteen were so diverse in their replies that it was difficult to tabulate their allocation of duties. For instance, some libraries have a full-time typist, in others the typing is done as a sideline by a member of the staff, whilst in others the majority of the typing is not done by any of the library staff.

The staffs of the fourteen libraries are : 9, 6, 6, 5, 5, 5, 4, 4, 4, 4, 3, 3, 3, and 2.

Of the smaller libraries (ten with staffs of three or less) three report that there is no strict division of responsibilities.

Some general conclusions on replies to this question were noted as follows :

1. Thirteen librarians out of the fourteen answer inquiries and carry out information researches, eleven do their own book selection, eight do their own classifying, and seven their cataloguing, and six out of the fourteen are responsible for interlibrary loans.

2. Among the assistants, inquiry work, amendments, report borrowing, issue recording and overdues, despatch, photo-copying and journal circulations seem to be the most evenly divided duties. The criterion here would appear to be need, rather than seniority.

3. It is questionable, even in a small library, whether the librarian need concern himself personally with such tasks as accessioning, issue records and overdues, stationery and despatch. No less than six librarians out of the fourteen confessed to the inclusion of these elementary routines among their duties.

Summary

From the foregoing it is not really fair to make definite comparisons or arrive at any final conclusions. I do feel, however, that the survey covers a representative range in the field of aeronautical libraries. This range can be analysed as follows :

Manufacturers (Aircraft and/or Power Plant)	13
Educational establishments	2
Government Libraries	2
Operators (Airline)	1
Others (Ancillaries)	3

It is apparent, however, that all of the libraries are live organisms, i.e. they are expanding rapidly. If they are not to outgrow their strength the set-up of each must be adjusted to meet increasing needs and the rate of adjustment must keep pace with the demands upon their services. In this connection, the main difficulty at present seems to be that the aeronautical world, whilst being increasingly library-conscious, is not yet library-minded. In other words, managements may see the necessity for a library, but are not yet fully aware of the problems of organization involved. Those responsible for finance and policy have failed to realize a library's potential value. Finally, I hope that this survey will be helpful to other librarians and information officers, and I would like to thank all librarians who answered my questionnaire.

I wish to thank the Chief Press and Information Officer of B.E.A. for permission to issue this Survey.

Appendix I, to show ratio between Stock, Staff, Library Loans and Inquiries

Items (to nearest 500)	*Additions (per year)*	*Staff*	*Library loans (per year)*	*Inquiries (per year)*	*Outside help, see Questions 5 and 6*
5,000	650	4	5,750	8,925	Yes
6,000	700	3	3,175	380 (over 15 mins.)	Yes
10,000	1,600	2	—	—	Yes
10,000	1,600	5	10,250	10,200	Yes
11,000	510	2	—	—	Yes
12,000	1,230	6	947	—	No
12,500	1,600	2	2,400	1,440	Yes
13,000	536	3	—	—	No
13,500	—	4	6,355	—	Yes
15,000	640	3	3,000	2,900	Yes
15,000	3,000	4	5,000	8,925	Yes
15,000	1,300	5	12,750	8,500	No
17,000	1,100	3	—	—	No
20,000	2,363	5	8,060	7,280 (no phone queries counted)	Yes
21,000	2,500	2	8,900	8,500	Yes
26,000	4,000	4	13,400	—	No
26,500	2,219	8	10,140	1,650 (detailed researches)	No
30,000	1,400	3	—	1,500	Yes
45,500	4,000	9	—	—	Yes

Notes :

(*a*) Spaces are left where no figures were given.
(*b*) One library gave figures for *books* only.
(*c*) One library has a stock of 6,500 but only the librarian to staff it.

APPENDIX II. JOURNALS

No. of journals taken (twenty-one libraries)	*No. of libraries in each group*
Under 49	4
50 to 99	6
100 to 149	4
150 to 199	2
200 to 249	2
250 to 299	2
Over 300	1

CIRCULATION OF JOURNALS BY THE SEVENTEEN LIBRARIES (see Question 5, Facility II)

No. of journals taken	*No. circulated*	*No. of names on circulation lists*	*Average list*
14	14	110	7·9
270	15	40	2.6
30	25	50	2.0
45	40	220	5·5
50	40	500	12.5
66	46	350	7·6
190	80	358	4·4
137	83	681	8.5
130	130	650	5.0
255	145	941	6.4
170	170	2,548	14·9

The following six libraries interpreted the question differently :

No. of journals taken	*No. circulated*	*No. of different persons who see these journals*
14	6	8
50	36	40
65	65	65
114	81	69
120	120	75
" over 300 "	" over 300 "	120

PATENT REVIEWS, PATENT ABSTRACTS

By W. Jacobsohn, A.M.I.Mech.E.

'The first thing to do is find out everything everybody else has done and then begin where they left off.'—*Edison.*

I

MUCH has been written about the necessary dissemination of knowledge and the part 'abstracts' have to play in the field of science. Yet one particular application has always been treated rather casually, the abstracting of patent specifications, although much up-to-date information found nowhere else can be obtained from these publications.

Now, just as no scientist is expected to read all the articles appearing in periodicals, but only their abstracts, in order to select those which he needs for his work, so no one can go through all the new specifications of patents of possible interest published all over the world. To give an idea of the amount to be sifted, each *British Official Journal* (*Patents*), a weekly appearing periodical, contains up to 400 short titles of accepted patent specifications which, a few weeks later, appear in print. The *Official Gazette* of the United States Patent Office publishes every week particulars of over 800 patents. The German *Patentblatt* covers over thirty pages of its weekly edition with details about new patents granted, about specifications open to public inspection, 'Gebrauchsmuster' (petty patents) and so on. There are over 140 countries in the world with their own patent laws and patents.

As the purpose of patents and the publication of patent specifications are fundamentally different from all other publications the normal abstracting rules do not apply. An article in a periodical is meant to become public property on publication. It usually refers to a single problem, which can be stated in a few words, and it is sufficient for the scientist to know the general way in which the problem has been treated to decide whether the article must be read by him or not. A short synopsis given by the author may serve as an abstract for all purposes.

A patent specification must contain not only the full description of a new invention, but this description implies also a warning not to trespass on the 'industrial property' of the patentee defined as far as possible in 'claims' at the end of the specification. Incidentally, the interpretation of claims in the different countries varies from the rigid adherence to the letter in the United States of America to the liberal view in Germany where the claims are not decisive for the extent of the protection. However, many different subjects may have to be touched upon in order to describe fully the invention and many details, especially in descriptions of complicated mechanical or electrical devices, may be of interest and may have been described for the first time but could not be treated in a general summary. To bring an example, a recently published British patent specification for an 'Accounting Machine' covers 143 closely printed pages with 94 sheets of drawings. The specification of an 'Electronic Computer' covers 187 pages with 6 sheets of drawings; this specification comprises thirty-two claims.

II

When abstracting patents the special purpose of the abstract has to be considered. If it is intended to inform readers of a periodical, manufacturers and dealers of the existence of a new patent, then short summaries may be sufficient, sometimes even the titles only. But this summary must contain the main item for which protection was granted so that the reader will know whether the patent may interfere with his work. If, on the other hand, a critical periodical survey is to be given of which the knowledge obtained from recent patent specifications forms part, for instance to show up the trends and developments in certain industries, then a fairly long abstract, almost a shortened version of the specification, would be justified. The most difficult problem arises in the compilation of patent abstracts in a specialized branch where the interest is not so much in the patent itself as 'industrial property' but in the information about the 'state of the art', published nowhere else in the whole literature. Thus we have three types of abstracts : (1) as part of a general patent review ; (2) as part of a critical survey ; (3) as periodic information about the 'state of the art' in a particular field.

III

Because of the enormous number of specifications appearing every week the Patent Offices of all the industrial countries have introduced very elaborate classification systems. In the United States, over 40,000 classes and sub-classes are listed, in Great Britain approximately 30,000. In the United States, as in Germany, a specification appears in one class only while in Great Britain a specification may be published in several classes if the invention contains subject matter for such classes. As all the classes and sub-classes referred to are printed on the front page of the specification a British patent often presents a spectacular array of numbers and letters preceding the actual text and showing how many problems may have been touched by the invention. It emphasizes the difficulty and the need to know what the reader wants before starting to abstract. A patent specification on, e.g., a 'Grinding Machine' may contain some new information on the process described, on the electrical control, on the truing device, a certain spindle arrangement, vibration damping means, copying mechanism, lubrication, dust removal, hydraulic feed, operational method and so on. This means that the specification, even if the claims are limited to one of those features only, would comprise material for quite a number of different branches of industry and possibly material never published before. A general abstract covering the whole ground would either be much too long, or would only enumerate all the features without giving a hint as to the particular role these features play in the machine. The reader would thus again be left to wonder whether he should read the specification at all.

It must be conceded that chemical specifications usually do not exhibit any difficulties. Thus *Chemical Abstracts* can deal with 20,000 patent specifications per year. There are also rare exceptions in the mechanical field ; for instance, one German patent issued before the war consisted of a single claim of a few lines without description or drawing. This specification was already an abstract 'by birth'.

IV

We have seen that three different kinds of abstracts are required. Now it is often thought that for the general patent survey it would be sufficient to work from a claim. However, patent language is seldom readily understandable to the layman. Furthermore, claims are not arranged in such an order that the first claim is always the main claim telling the reader what the patent is about. Unfortunately this is not always understood and patent reviews are rendered less useful by such a procedure. Therefore, whether the abstract is meant for a general review or for the purpose of keeping readers informed of the 'state of the art', there are a few rules always to be considered. Firstly : the abstractor has to find out whether there is anything of interest, the description of which may be concealed in a few paragraphs and a few illustrations. Secondly : the abstractor has to translate the text from the involved patent language (technical-legal) into language easily understood by the reader. Finally : the abstractor has to condense the text to, say, 150 words as otherwise the reader would not go through it.

In selecting patents for abstracting, marginal patents must be included as the final decision must be left to the reader. One point, however, must be stressed over and over again : no abstract can replace the reading of the complete specification, it can only facilitate the sifting of the literature so that the specialist can read up all he needs without going through a host of irrelevant matter. There is one further point of importance. Although patents are granted to the inventor for his contribution to present knowledge the 'state of the art' refers to the time when the patent application was filed which might have been years ago. On the other hand, everything which has been published in a patent specification must become known to the scientist, chemist or technician without delay as 'One example of intolerable gross inefficiency is reinventing a product or process already covered by a competitor's patent'. ('The Literature Chemist', paper by J. M. Perry, published in *Chemical and Engineering News* in 1950). That is why abstracts of recent patents must be available to the reader as soon as possible after the publication of the patent specification, whether in the form of a general patent review, a critical survey, or as periodic information on the present 'state of the art'. The editors of periodicals, therefore, should try to allot sufficient space to patent reviews at the right time so that these reviews can really give a lead to progress in industry.

One problem, however, remains. Up to now, no one seems to know the actual requirements of industry (not taking into account firms with special Patent Departments), no one has found out what percentage of the readers of a periodical goes regularly through a patent review, and whether such compilations are in fact the help they are meant to be.

THE WORK OF ASLIB

REPORT of the Council for the year ended 31st December, 1953, presented at the Annual General Meeting, 9th June, 1954, held at the Institution of Civil Engineers, Great George Street, London, S.W.1.*

Contents

Section A — *Introduction.*
Section B — *Finance.*
Section C — *Membership.*
Section D — *Conferences and Meetings.*
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Section F — *Information Service and Library.*
Section G — *International Relations.*
Section H — *Publications.*
Section I — *Branches.*
Section J — *Groups.*
Section K — *Staff.*

Section A—Introduction

The Council is again able to report a very satisfactory year in which Aslib's stability was maintained, its capacity for service to its members developed and the growing importance of its work acknowledged. As the various sections of this report show, the services which have been built up in response to members' needs were in increasing demand ; more members came to the annual conference, the principal event of the Aslib year, than ever before ; the membership rose to nearly 1,600, itself an indication of the growing awareness of the value of information service when set against the total of 1,038 only three years earlier ; a surplus of income over expenditure of over £1,650 was achieved and £525 were added to the reserve fund. One important event was the presentation to the Industrial Grants Committee of Aslib's application for Government grant during the five-year period 1954–58. The deputation, led by Dr. Percy Dunsheath, was most gratified by the Committee's warm appreciation of Aslib's achievements.

It is pleasing to record that some projects which are not Aslib's primary concern, but in which Aslib takes a close interest, also prospered. In particular, plans for publishing the British Union-Catalogue of Periodicals (BUCOP)—stimulated by a further grant of £5,000 from the Rockefeller Foundation—began to take shape. The joint Aslib/Library Association Committee on Documentary Reproduction, however, met only once—in January, 1953.

The Council records with regret the death of Charles le Maistre (1872–1953), a member of Council since 1942, its Chairman from 1945 to 1950, and Past President of the International Federation for Documentation.

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* The report, together with lists of officers and staff, and the Balance Sheet and Accounts for the year, was circulated to all members of Aslib before the meeting.

Section B—Finance

The year was the last of the quinquennium 1949–53, for which D.S.I.R. grant was authorized, and it is appropriate to review briefly the progress made during this period. In 1949, grant-earning subscriptions were approximately £3,000 ; during 1953 they exceeded £7,000. The turnover for 1949 was £11,000 as against £25,000 in 1953. At the end of 1949, the last of the difficult years, the accounts showed a bank overdraft of £1,000, whereas there are now investments totalling this amount. During each year of the quinquennium the financial position showed an improvement which has continued through 1953.

The Income and Expenditure Account for 1953 shows that office expenses have remained, in general, surprisingly stable. The increases, stationery £104, telephone £92, postage £470, are only to be expected with continued increase in membership and services—the Document Reproduction Service, for instance, accounting for much of the increase in postage. Apart from an increase of £380 in the cost of printing *Aslib Proceedings*, which was one-third larger than in 1952, the cost of producing Aslib periodicals has also remained steady. The programme of publication of other works has increased ; some have been published, as is shown by the contra figures for sales, other works will be published shortly. These items, like the cost of the Document Reproduction Service and the Annual Conference, are expected to be, in the main, self-balancing.

On the income side, grant-earning subscriptions rose by nearly £1,000 during 1953 to over £7,000, but the maximum Government grant for the year was limited to £6,000 under the terms of the agreement with D.S.I.R. Non-grant-earning subscriptions increased by £700. Sale of advertising space in Aslib periodicals increased from £204 to £633. The overall result is an excess of income over expenditure of £1,659.

The Balance Sheet shows that £136 was spent on furniture, etc. Of this, £122 was paid from D.S.I.R. special grant, increasing the item Capital Grant from £3,277 to £3,399. With furniture, fittings and equipment valued each year at cost, it is necessary to allocate a reserve for replacement purposes and the figure is now £800. Stocks of publications have increased materially by the publication of a number of works already referred to, and represent an increase of £320 on the depreciated value of stock at 31st December, 1952. Investments in National Savings Certificates and 3½ per cent Defence Bonds have been increased to £1,025.

The main contingency for which the reserve fund has been created is an extension of accommodation either in the present building or in alternative premises when the present lease expires in 1956. It is reasonable, however, to regard replacement of furniture and equipment as another eventuality. For this reason it is proposed to invest a further sum (£1,000), in view of the surplus on the year's working, when all Government grant in respect of 1953 has been received. The surplus (£1,659) represents approximately 7½ per cent of the income from subscriptions, sales and services and is regarded as a reasonable margin of working.

Development plans and estimates of income and expenditure for the quinquennium 1954–58 were submitted to the Industrial Grants Committee in June by a deputation led by Dr. Dunsheath, Past President. The Council was extremely gratified to learn of the Committee's warm tribute to Aslib's recent progress and its clear understanding of Aslib's function. In due course, the following scale of grant was offered :

Grant	*Grant-earning Income*
£5,000 in respect of	£7,500
£50 in respect of each additional	£100
up to	
£7,000 in respect of	£11,500

Note : In 1953, it was necessary to raise £6,000 in grant-earning subscriptions to secure grant of £6,000.

Having regard to the stringent economies undertaken in public expenditure, the Council considers the new terms to be a generous recognition of Aslib's work, though plans for development and the need for larger premises in 1956, when the present lease expires, are certain to entail heavier expenditure than in the past. Already many members have generously agreed to increase their subscriptions to enable the present level of activity and service to be maintained.

Section C—Membership

Aslib's developing activities continued to attract new members and a net increase of 149 was recorded, bringing the total to 1,583, compared with 1,434 at the end of 1952. As in the previous year, industrial companies (85) accounted for the most substantial increase. The following table shows the distribution of members among six fairly clearly defined categories at the end of the year :

Industrial and commercial concerns	461
*Government Departments and Government-sponsored organizations	186
Public and National libraries	187
Universities and Colleges	150
Other non-profit-making organizations. (Learned Societies, Trade Associations, etc.)	226
Individuals	373
TOTAL	1,583

* Government Departments are not members in the strict sense, but enjoy the same facilities as members in consideration of the Government grant which Aslib receives.

In this table, overseas members are included in the appropriate category instead of being shown separately as in previous years, and the public libraries and universities, which form the main classes within the group previously designated as 'non-profit-making organizations', are listed as separate categories. This re-arrangement means that no direct comparison is possible with the figures for 1952, but the headings now adopted are considered to indicate more clearly the composition of the membership than those used in previous years. It is worthy of note that the United States of America and Canada have together nearly 100 members of Aslib, and that a special meeting was held for them during the Annual Convention of the Special Libraries Association in Toronto in June.

Section D—Conferences and Meetings

Attendance at the Annual Conference, held in ideal weather, 11th to 14th September at Nottingham University, was the highest ever recorded at an Aslib conference. Over 300 delegates took part. The Aeronautical, Fuel and Power, and Engineering Groups each held a symposium on matters affecting their own fields and, as an experiment, twelve panel meetings were held. Though not all proved to be of equal usefulness, the experience gained will doubtless be valuable to the organizers of future conferences. A well-supported exhibition of books and library equipment was a notable feature of the conference, and the formal sessions dealt with professional training, administration in special libraries, photocopying methods and information from U.S.A. A novel excursion into the realms of dramatic art—a committee of inquiry into a works explosion—portrayed some of the evil effects of inadequate information services on the fortunes of a chemical manufacturing company. The conference opened with a provocative presidential address by Mrs. Barbara Wootton. Her paper and reports of the conference sessions appear in *Aslib Proceedings*, vol. 5, no. 4.

Winter meetings were held during the year as follows :

'Second-hand periodicals', by B. C. Vickery, A. Allardyce, K. B. Shaw and H. Marley (*Aslib Proceedings*, vol. 5 no. 2).

'Copyright Moot—a hypothetical case of infringement of the law'. A fictitious case presented in dramatic form and commented upon by a member of the legal profession (*Aslib Proceedings*, vol. 5, no. 2).

'Copying documents by photography', by J. H. Stocks. Joint meeting with the Presentation of Technical Information Discussion Group.

'Information available to exporters', by M Maddan and K. Mallaber.

'Special library insurance', by J. M. Hiron.

'London Council of Social Service : Information services of the Citizens' Advice Bureaux', by Miss E. L. Littlejohn.

Some of the papers read at these meetings, but not published during 1953, will be selected for publication in *Aslib Proceedings* in 1954.

Section E—Education

The senior lecture course first held in 1952 had been such a success that it was decided to hold a similar course in 1953. The subject chosen was 'Sources of Information'. The course was held at Aslib headquarters, 19th to 22nd February, and 54 students took part. The formal lectures, in some of which tape recordings were used to illustrate a few of the pitfalls of inquiry work, dealt with published sources, the resources of organizations, the work of publicity and liaison officers, information techniques and the function of clearing houses for information.

The course for newcomers to information work, which has been a feature of Aslib's programme every year since the war, was held at Friends' House, London, 13th to 18th April. Some 27 students took part and it seems probable that attendances have now stabilized at this level after the swollen numbers of the early post-war years. The course is intended primarily for persons with under three years' special library experience and has proved an encouragement to more extensive study.

Suggestions were received for short courses for subject indexers and also for company executives bearing a partial responsibility for technical information within their companies ; these are still under consideration. Special attention was paid to the provision of an adequate full-time course for information officers, as a result of which a tentative syllabus was drawn up. This syllabus, together with some other matters of educational policy, was referred late in the year to an *ad hoc* committee with instructions to produce a comprehensive policy statement for consideration by the Council.

Section F—Information Service and Library

The calls made upon the services of the Information Department continued to increase. The number of inquiries handled rose from 7,632 in 1952 (cf. 3,521 in 1951) to 11,482, an increase of 50 per cent. These inquiries fall into the following main categories :

Type of Inquiry	1952	1953
Requests for help in borrowing material . .	3,677	5,214
Use of Commonwealth Translations Index	642	1,256
Bibliographical and other inquiries . .	3,313	5,012
TOTAL	7,632	11,482

It would be interesting to ascertain statistically how much of this inquiry work is successful from the inquirers' point of view. The indications are that a very high proportion indeed is successful, and the time may well be ripe for an analytical examination of the results.

Commonwealth Translations Index

In 97 cases out of 1,256 the index contained a record that the desired translation had been made and was available for loan—a positive result of 8 per cent. This compares favourably with 1952, when 30 translations out of a desired 642 (5 per cent) were found to be already recorded, and suggests that the usefulness of the index is growing as its coverage expands and it becomes more widely known and used. Some 11,000 translations are now recorded.

Document Reproduction Service

This service continued to be much in demand, especially with overseas members. It was hardly to be expected that the increase in turnover of 192 per cent in 1952 would be repeated, but the amount of work done was almost double that in 1952. As long as the service continues to be used to approximately this extent, it should not again need to be subsidized from general funds. A particularly useful service provided during the year was the microfilming of the manuscript class allotment indexes, maintained at the Patent Office, of British Patents admitted between 1939 and 1953. This was the only subject index in existence for that period and the microfilm copies have proved invaluable, especially to provincial patent searchers. Aslib is indebted to the Comptroller-General of H.M. Patent Office for permission to film the manuscript indexes and to make copies available to industry at an economic price.

Panel of Specialist Translators

The number of introductions effected between translators and employers approximately doubled in two years—from 90 in 1951 to 130 in 1952 and 170 in 1953. A more rigorous control of the work performed by members of the panel was instituted, employers being asked to report on all translations made for them so that the high standards set for the panel could be maintained. In general, these reports were highly satisfactory. The panel now consists of 135 persons.

Panel of Specialist Indexers

This panel was set up in the autumn, on similar lines to the panel of specialist translators, in an attempt to group together specialist subject indexers for the assistance of publishers and authors, and to focus attention on the need to improve the standard of published indexes—and of indexing generally—in this country. The project received a warm welcome in the specialist Press. High standards were deliberately set for applicants for registration ; proof of subject knowledge and of indexing experience, preferably supported by examples of indexing work actually performed, are required. It is appreciated that the creation of an entirely satisfactory panel may well extend over a period of several years and only 17 applicants for enrolment were accepted in 1953. It was nevertheless possible to recommend suitable indexers in five cases. Reports are also being obtained on the quality of the work performed by members of this panel.

Aslib Library

It is encouraging to report a steady increase in the use made of the library. Much of this can be traced to the interest aroused by the survey of library literature published in the *Journal of Documentation* and to the lists of recent papers which appear monthly in *Aslib Information*. Fewer pamphlets were added to the stock, but the number of new books was 45 per cent greater than in 1952. The table gives a comparison of the library's main activities between the two years :

Library Statistics	1952	1953
Loans from library..	1,491	1,872
Books added	272	395
Pamphlets added	248	147
Miscellaneous items indexed	688	906

The number of journals (titles) received was 170.

Consultant Service

Both the reorganization of this service carried out in 1952 and the publicity originally given to the scheme began to have their effect in 1953. Some six companies and five other organizations wishing either to set up an information department or to effect a radical reorganization of an existing library took advantage of the service to seek information and guidance. In three cases, Aslib's services were retained in a consulting capacity and full-scale recommendations were prepared by Aslib and their implementation supervised. Although the main effects of this development will not be seen until 1954, the most encouraging feature is that industrial and other organizations have now clearly indicated that the information function of management is one on which they are willing and anxious to take specialist advice. There is every reason to look forward to a steady development in the useful service which Aslib can give in this way.

Section G—International Relations

Mention has been made elsewhere in this report of the meeting arranged for American and Canadian members of Aslib during the S.L.A. Convention in Toronto. At the meeting, a committee was set up to examine ways of establishing durable contacts between members in the United States of America and Canada and those in the United Kingdom. The Aeronautics Engineering Section of the S.L.A. also established a committee to co-ordinate the section's activities, where possible, with those of the Aslib Aeronautical Group.

Aslib continued to take an active part in the work of the International Federation for Documentation (F.I.D.). As part of its contribution, Aslib undertook to compile a revised edition of *Index Bibliographicus*, Part I (Science and Technology) ; Part II is to be revised by the International Social Science Documentation Committee and the International Council for Philosophy and Humanistic Studies. It is hoped that the new edition will be published by the F.I.D. in 1955. A second important development during the year was an arrangement with the British Standards Institution (which is responsible for the English edition of the Universal Decimal Classification) whereby the Institution is to have *ex officio* representation on the Aslib International Relations Committee and to send a nominee to F.I.D. Council meetings. The B.S.I. nominee will normally speak on behalf of the British delegation when standardization or the U.D.C. is under consideration, the Aslib nominee being the British spokesman at other times. This happy arrangement enables both Aslib and the B.S.I., each of which is concerned with one or other aspect of the work of the F.I.D., to have a voice in the Federation's affairs.

The Council records with pleasure the appointment of Dr. Luther H. Evans, Librarian of the United States Congress and an Honorary Member of Aslib, as Director-General of Unesco in succession to Dr. Jaime Torres Bodet, and the election of Dr. Alexander King, a member of Aslib Council, to be a Vice-President of the F.I.D.

Section H—Publications

The most important step taken by Aslib in this field was the publication, in July, of the first annual *Index to Theses Accepted for Higher Degrees in the Universities of Great Britain and Ireland*, covering the academic year 1950–51. Some 2,200 theses were listed, together with author and subject indexes, and the publication of the index, the first comprehensive one to be attempted in this country, brought to fruition plans that had been under active discussion since the Royal Society's Scientific Information Conference in 1948. Almost all the 700 copies printed had been sold by the end of the year and plans for a reprint were under consideration.

One special publication, the third in the Aslib Manuals series, was issued. This was *Periodicals and serials : their treatment in special libraries*, by David Grenfell, a former information officer at Aslib and now Chief Cataloguer at the National Film Library. It was very well received and 711 copies were sold between its publication in July and the end of the year. Good progress can be reported on the new *Directory of Specialised Sources of Information.* Questionnaires were returned by some 3,000 organizations and more were expected in 1954. By the great generosity of the Council of the Royal Society, which has promised to pay £2,000 towards the cost of publishing the *Directory*, it will be possible for Aslib to undertake publication at its own risk and to set aside any profits for the purpose of compiling periodical supplements.

The sale of Aslib periodical publications to non-members increased steadily over the year. Receipts from sales of *Aslib Proceedings* rose from £231 to £341, and those of the *Booklist* from £233 to £268. Sales of the *Journal of Documentation* fell by about £50 to £752. When quoted separately, these figures appear small, but it must be remembered, first, that corporate members of Aslib at present receive a copy of each of the publications as part of their membership entitlement and, secondly, that the successful campaign for new members has, during the past three years, converted many non-member subscribers to the category of full-scale corporate members receiving the periodicals free of charge.

A systematic campaign was started for the sale of advertisement space in the periodicals and in the annual conference handbook. As a result, revenue from this source rose from £204 in 1952 to £633.

Section I—Branches

A notable feature of branch activities in 1953 was the number of meetings held jointly with other organizations—always a source of useful contacts for special librarians. The Northern Branch held meetings with the Manchester and District Special Libraries Discussion Group and with the North-Western Group of the Reference and Special Libraries Section of the Library Association, and the Midlands Branch joined forces with the Birmingham section of the Institution of Production Engineers and with the Coventry Engineering Society.

Attempts were also made to relate conference themes to local industries. A Northern Branch Conference at Stoke-on-Trent, for example, dealt partly with information in the ceramic industries and another, at Bradford, was planned with the textile finishing trades in mind. A one-day conference held by the Midlands Branch at Birmingham University included visits to the Aitchison (Metallurgical) Laboratory and the Barber Institute of Fine Arts.

Sir Andrew McCance, Chairman of Messrs. Colvilles, Ltd., opened the annual conference of the Scottish Branch at Glasgow in February and spoke of the opportunities for library service in industry. Other papers were about sources of scientific information in Scotland, the work of the Scottish Council (Development & Industry), the problems of establishing a small special library and the use of the English language in writing reports.

Other subjects dealt with at branch meetings included the research chemist's view of the information requirements of industry, sources of Russian information in science and economics, patent literature and management's appraisal of the technical librarian. A number of the papers read at meetings mentioned in this section have been published in *Aslib Proceedings*.

Branch membership increased as shown :

Branch	1952	1953
Midland	102	107
Northern	167	197
Scottish	55	61

Section J—Groups

The formation of a Chemical Group brought the number of groups to seven. The others are the Aeronautical, Economics, Engineering, Food and Agriculture, Fuel and Power, and Textile Groups. The scope of the groups varies greatly from one to another, but one factor common to all is that they provide a forum at which all persons interested in information service as it affects a given specialized field can discuss their mutual problems.

Union lists of periodicals have already been compiled by the Aeronautical, Economics, Engineering and Textile Groups, and are being prepared by the Chemical and Food and Agriculture Groups. The preparation of such lists is not only a useful task in itself ; it also serves to consolidate the membership of a group. The Engineering Group has compiled a Guide to sources of information for engineers and has undertaken a census of members' interests, the results of which point to a number of engineering problems on which information is scant or lacking. As stated earlier, three of the groups organized sessions at the Annual Conference, the working paper for the session held by the Fuel and Power Group being a valuable directory of libraries concerned with fuel and power. The Textile Group hopes to produce shortly the second half of a report—the first has already been completed—on the classification of information about textiles.

The Aeronautical and Food and Agriculture Groups have both studied classification problems. The former is assisting the British Standards Institution in the revision of the aeronautical engineering sections of the U.D.C., and the latter has appointed a sub-committee to examine Sections 663 and 664 and to put forward any recommendations that may seem necessary. The Aeronautical Group, in addition, has taken a close interest in a scheme for cataloguing aerodynamic data devised by the Nationaal Luchtvaartlaboratorium, Amsterdam, and the cards will begin to be published in 1954. The scheme was among those discussed at a conference held in March jointly by the Group and the Advisory Group for Aeronautical Research and Development of the North Atlantic Treaty Organization. The conference was attended by 75 persons, including visitors who had come specially from Canada, France, Italy, Scandinavia, N.A.T.O. headquarters and the U.S.A. This group regards the international aspect of its work as particularly important and agreement has already been reached with the Aeronautics Engineering Section of the American Special Libraries Association on the size of reports and supply of catalogue cards with reports, while an acceptable indexing system, the exchange of translations and periodicals, abstracting bulletins and the distribution of reports are under discussion.

Section K—Staff

Although substantial increases in the calls made on Aslib's services are recorded in this report, it was possible to deal with them without increasing the office staff; the number remained at 24, as in 1952. Even so, the offices are now almost as crowded as those at Bloomsbury Street in 1949. The Council is glad of the opportunity to express its appreciation of the staff's continued loyalty and enthusiasm. In April, 1953, it was agreed that an Assistant Director should be appointed to help develop Aslib's interest in research and other technical matters, and Mr. L. J. Anthony, F.L.A., Librarian of British Telecommunications Research, Ltd., and formerly of the Manchester and New Mills Public Libraries, was appointed to take up his duties on 1st January, 1954. Miss Jean Mason, who joined the staff straight from school nearly eight years ago, takes with her the best wishes of the Council on leaving to be married. Mr. O. D. Elliott departed to enter the Colonial Education Service in Cyprus and Miss P. R. Orpen left to join him as his wife.

For and on behalf of the Council,
B. AGARD EVANS, *Chairman.*
BARBARA KYLE, *Honorary Secretary.*
J. E. WRIGHT, *Honorary Treasurer.*
LESLIE WILSON, *Director.*

ARTICLES OF ASSOCIATION OF ASLIB

The Council has for some time been conscious of the desirability of providing for the *ex officio* representation of the local branches of Aslib on the Council. It was considered, however, that the revision of the Articles of Association, which such a provision would entail, would best be effected as part of a general review of the Articles after some five years' operation. This was carried out early in 1954 and extensive amendments to the Articles submitted to the Extraordinary General Meeting on 9th June, 1954.

Most of these amendments are matters of form only and are designed to reflect changes in the titles of Acts of Parliament, definitions of geographical expressions and similar matters. The existing Article 16, however, is rewritten to show at a glance the composition of the Council and to provide for the *ex officio* representation on it of the branches. These had, in fact, been continuously represented either by normal election or by co-option, but their representation has now been ensured as of right. An amendment to Article 18 restricts to six consecutive years the period, originally three terms of three years each, for which a member of Council may serve without retiring for at least one year, and provision is also made for the creation of specialist groups and other dependent organizations in addition to the existing local branches.

Copies of the Articles, as amended, are being printed and will shortly be available to members of Aslib on application to the Director.

BRITISH UNION-CATALOGUE OF PERIODICALS

TENTH ANNUAL REPORT OF THE COUNCIL FOR THE YEAR ENDING 31ST MARCH, 1954*

The British Union-Catalogue of Periodicals is now approaching completion, and will provide a guide to the location and availability of the periodicals of the world held in the principal libraries of the United Kingdom.

During the past year, the details of holdings of periodicals of over one hundred libraries have been recorded ; and there will be well over 300 libraries represented in the completed work.

During the progress of the work, the Council has given special attention to the regional representation of the libraries included in BUCOP ; and the past year has seen valuable work done to cover holdings of libraries situated in parts of the country found to be less well represented than others. As the libraries concerned were, in the main, those which had been unable for one reason or another to co-operate at an earlier stage, some field work has been necessary to achieve results. The effect of this should be to increase the value of BUCOP as a guide to the local and national availability of periodical literature to scholars in widely scattered districts throughout the country.

An important feature of the past year has been the consideration of an agreement with Messrs. Butterworth & Co., Ltd., for the publication of BUCOP. Although some details remain to be agreed, it is now hoped that publication, probably in four volumes, will commence in the spring of 1955.

No organized publicity has yet been given to BUCOP, but the number of requests for help received from libraries and other institutions, as well as from individuals, continues to increase. Although an inconvenient tax upon the time of our limited staff, these enquiries are regarded as encouraging proofs of the widespread need for the work upon which we are engaged.

Our most cordial thanks are again due to the Rockefeller Foundation for its financial support ; and to the Trustees of the British Museum for providing accommodation and much valuable assistance.

Our thanks are due also to the Editor, Mr. J. D. Stewart, Miss M. E. Hammond, Chief Cataloguer, and Dr. Erwin Saenger, who have at all times given us expert and devoted service in this great undertaking.

BUCOP,
c/o The British Museum,
London, W.C.1.

*The Ninth Annual Report was published in *Aslib Proceedings,* Vol. 5, No. 3, p. 247, but was erroneously shown as the 'Seventh' Annual Report.

BRITISH UNION-CATALOGUE OF PERIODICALS
INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST MARCH, 1954

Year to 31/3/53 £	£		£	s.	d.	£	s.	d.
1,750		Grant from Rockefeller Foundation ..				2,000	0	0
5		Interest on Deposit				—	—	—
	1,755							
		Less Expenditure						
25		Administrative Expenses	25	0	0			
1,869		Salaries	2,036	12	1			
—		Printing and Stationery	24	18	6			
5		Postage	9	14	7			
—		Field Work	29	10	0			
—		Reference Books	10	1	7			
22		Travelling and Conference Expenses ..	20	3	0			
3		Audit and Accountancy	3	3	0			
1		Sundries		5	1			
	1,925					2,159	7	10
	170	Deficit for the Year Ended 31st March, 1954				159	7	10
	532	Accumulated Surplus brought forward at 1st April, 1953	163	17	6			
170		*Less* Deficit for the Year ended 31st March, 1954	159	7	10			
198		*Mr. Besterman's expenses in New York in* 1945	—	—	—			
	368							
	164					4	9	8
		Represented by :						
206		Cash at Bank on Current Account ..	17	19	2			
6		Post Office Savings Bank Account ..	5	16	1			
17		Cash in Hand	48	16	5			
229			72	11	8			
65		*Less* Sundry Creditors	68	2	0			
	164					4	9	8

We have examined the above Income and Expenditure Account with the Books and Records of ASLIB and certify that it is correct and in accordance therewith.

(Signed) West & Drake,
Chartered Accountants.

Sardinia House,
52 Lincoln's Inn Fields,
London, W.C.2.

24th May, 1954.

Aslib Proceedings is published in February, May, August and November. Annual subscription: 40*s*., members 25*s*. Separate numbers: 10*s*. 6*d*., members 6*s*. 6*d*. All communications: Aslib, 4 Palace Gate, London, W.8.

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Aslib Proceedings

ASLIB PROC. VOL. 6 No. 4 pp. 203—297 LONDON, NOVEMBER

ASLIB

In 1924, Lord Swinton, then President of the Board of Trade, sent the following message to the first Aslib Conference:

> "The growth of knowledge during the living memory has been remarkable and its application evident in every direction. Whilst it is generally recognized that 'knowledge is power', it is none the less true that a considerable proportion of accumulated knowledge, whether in the domain of science, business, sociology, education or elsewhere is unfortunately lying dormant and untapped.
>
> "An immense amount of extremely valuable information is in existence if only one knows where to find it . . . The volume . . . being far beyond the mental grasp of any individual or group of persons, however erudite, it becomes a vital necessity to provide a master key whereby the common storehouse may be unlocked."

Aslib is that master key.

Aslib's services include an information bureau with a special section for industrial enquiries, a book loan service, a panel of specialist translators, an index to unpublished translations, a document reproduction service and a library consultant service.

Activities embrace lectures, conferences, staff training courses in special librarianship and information work, industrial information groups and provincial branches. Periodicals published are the *Aslib Book-list, Aslib Proceedings, Aslib Information* (members only), and the *Journal of Documentation.*

Further information and particulars of membership rates will be supplied on application to the Director, Aslib, 4 Palace Gate, London, W.8. Tel.: Western 6321/2/3/4.

ASLIB PROCEEDINGS

VOLUME 6

1954

Aslib

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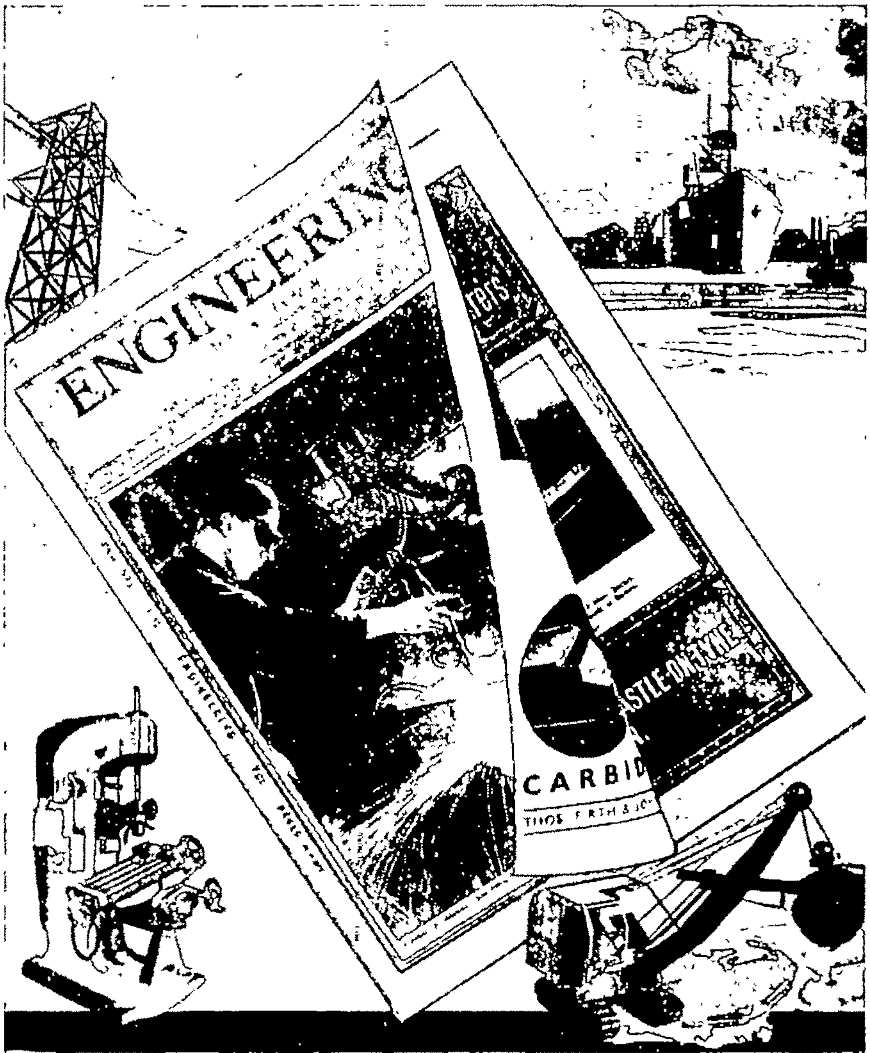

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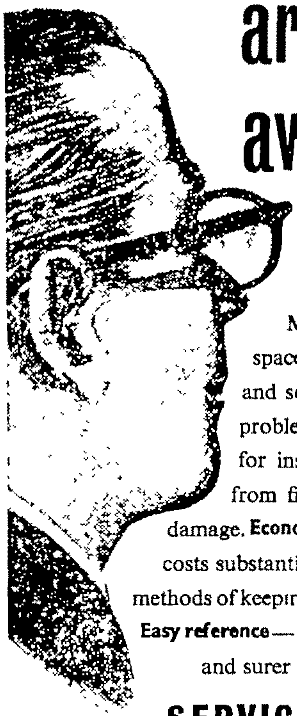

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ASLIB PROCEEDINGS

Volume 6 November 1954 Number 4

INTRODUCTION

THE Twenty-ninth Annual Conference of Aslib was held in London during the week-end 24th to 27th September, 1954, at Church House, Westminster ; it was the first non-residential conference since 1947. Inevitably there were both defects and advantages in comparison with the residential meetings. An advantage sprang from the fact that many London members, who for various reasons had not been able to attend recent conferences, managed to attend one or more of this year's sessions. Many old friends, stalwart supporters in the early and formative days of Aslib, met again and recalled, not wholly without nostalgia, those smaller gatherings of the past. With part-time attendances, the total number was over 360, not including guests from O.E.E.C. and from the International Council for Building Research, Studies and Documentation. On the other hand one of the defects of the *milieu* lay in the ingenious but confusing architectural plan of Church House. Access to the halls could be obtained by so many different routes and on so many different levels that to meet a friend known to be in the building became a very hit-or-miss affair.

The conference opened with an informal and cheery gathering on the Friday evening, followed by dinner for 250. This was succeeded by the Presidential Address, when Mr. Agard Evans, Chairman of the Aslib Council, welcomed the members and visitors and introduced the speaker. Dr. Barbara Wootton, who had been elected to a second term of office as President, spoke on the subject of communication. In a sense this was a sequel to the Presidential Address in 1953, but on this occasion she gave particular emphasis to problems arising in the language of the social sciences. Dr. Wootton's address is printed in full in this issue.

On Saturday morning the opportunities for the scientist who takes up information work as a career were considered. Mr. F. O. Morrell, of British Telecommunications Research, Ltd., was in the Chair. Mr. Uvarov spoke from the point of view of the scientist and supported his conclusions by statistics resulting from the questionnaire which had been circulated to members of Aslib. He was followed by Dr. R. M. Lodge, who summed up the needs of the employer regarding information services. Both papers, together with the ensuing discussion, are printed in this issue.

Saturday afternoon provided an opportunity for Mr. L. J. Anthony, Assistant Director of Aslib, to describe some equipment of current interest to information workers and librarians, with special reference to the exhibition of equipment which was being held during the conference.

A summary of his remarks is printed, together with an annotated list of exhibitors. The discussion which followed was concerned at first with problems of storage but soon reverted to that topic of perennial interest, the advantages and disadvantages of microphotographic reproduction.

After a break for tea, during which many visited the exhibition for further investigation of apparatus which had recently been described, Mr. Leslie Wilson, Director of Aslib, spoke of Aslib's development. He traced its early, formative stages, and outlined some of the work which, in his opinion, should now be undertaken. His remarks, which are summarized in this issue, were purposely provocative and it is disappointing to note that in the discussion which followed his challenge was not really taken up. The Chair for both Saturday afternoon sessions was ably taken by Mr. B. Chibnall, Chairman of the Conference Committee.

Saturday evening had been left free for recreation and by 6 p.m. the delegates had scattered in many directions. Block bookings for three theatres and for the ballet at Covent Garden had been made and all reservations were filled.

On Sunday morning Mr. R. A. Fairthorne presented his paper on the theory of communication with the President, Dr. Barbara Wootton, in the Chair. Not even the most persuasive presentation could disguise the fact that, to the non-mathematician, his paper was 'tough' but the success with which he managed to put it across to the audience was proved by the lively and informative discussion which followed. Both the paper and a summary of the discussion are included in this issue.

Sunday afternoon, the last session of the conference, was devoted to a symposium on the function of the library in preparing and producing technical papers, with Mr. C. W. Cleverdon, of the College of Aeronautics, in the Chair. The first speaker was Mr. Robert C. Sale, of the United Aircraft Corporation, who had kindly flown over from the U.S.A. specially for the conference. Our sincere thanks are due to him both for this effort and for his gallant struggle against the severe chill from which he was suffering as a result of our unseasonable weather. His paper, reproduced in this issue, traced the gradual development in special libraries of a sense of responsibility for the preparation and production of technical papers and showed the extent to which this new function was now being undertaken by libraries, particularly in the U.S.A.

The other contributors to the symposium were Mr. G. A. Lloyd and Mr. B. C. Brookes, each of whom spoke shortly on the scope and object of the bibliographies that they had prepared. Mr. Brookes had listed a number of books that could be of practical help to technical authors ; Mr. Lloyd had compiled a selective bibliography of national and international standards in documentation, with special reference to the writing and editing of technical papers. Both lists and the discussion which followed are included in this issue.

Tea-time marked the close of the conference proper but many took advantage of the visits which had been planned for Monday. A party of eleven visited the British Standards Institution in its new, Park Street, home. Sixteen toured the Science Museum Library under the guidance of Mr. Anthony Thompson, a further sixteen visited the Patent Office Library and were shown round by Mr. Gravell and Miss Watkins. So many wanted to visit the Shell Petroleum Co., Ltd., Reproduction Department, that the party had to be divided and the visit was repeated on the Tuesday. A group of thirty toured the British Museum and a further thirty visited the Headquarters of the Department of Scientific and Industrial Research. In all, 128 members took advantage of these conducted tours of places of interest.

It would be fruitless to try to compare the non-residential conference with the residential type that is traditional with Aslib. Each has its peculiar advantages and disadvantages. It suffices to say that the twenty-ninth conference can be counted as an undoubted success. The labyrinthine corridors of Church House may remain the dominant recollection for certain of those who attended, but those corridors were full of new and old friends and there were few occasions, between sessions, when the hum of conversation did not attain that pitch which, to the experienced conference-goer, is proof that the ice has been fairly and successfully broken and that the exchange of information is in full spate !

Owing to lack of space it has not been possible to indicate, in the list of those attending the conference, the exact position in his or her organization held by each individual. For those who require this information copies of the list as circulated at the conference itself can be obtained on loan from the Aslib office.

E. M. R. DITMAS,
Editor.

Corrections

In *Aslib Proceedings*, Vol. 6, No. 3, p. 132, it was stated that Mr. Hazlewood spoke at a meeting of the Midlands Branch on 27th January. It has since been ascertained that the talk had to be cancelled at the last moment.

Attention is also drawn to a correction slip for insertion in the same issue, in which certain information given in Mr. Barker's paper is brought up to date.

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FURTHER PROBLEMS IN COMMUNICATION : THE LANGUAGE OF THE SOCIAL SCIENCES

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I MUST begin this address with an apology for the uncommunicative nature of the title of my paper as announced in your programmes. As often happens, the title had to be chosen in advance of the birth, even perhaps of the conception, of the matter which it professes to describe : its vagueness must, therefore, be explained as a precautionary attempt to provide for all contingencies. Actually, the particular subject of this paper is *The language of the social sciences* ; and I would ask you, therefore, to be good enough to append those words as a sub-title.

For that choice a second word of apology, or at least of explanation, is perhaps necessary. When last year I had the honour of addressing you at your annual conference, I was concerned to bring to your notice some of the peculiar difficulties which beset the attempt to establish quantitative exactness in the field of the social sciences. Normally, however, in the development of any science, the use of quantitative symbols ranks as a later and a higher stage than that of crude verbal description. It would seem, therefore, that we are travelling backwards, or that we must have been trying to run before we could walk.

Perhaps we have. My excuse is that last year it did not occur to me that you would again do me the honour of electing me to your Presidency, or submit yourselves to the imposition of a second address by the same author : we need not have run, had we known that there was time to walk. My first and most agreeable duty this evening is, therefore, to tell you how much I appreciate both that honour and this opportunity to move at a slightly less breathless pace. My contacts with Aslib have been uniformly happy. Certainly, long after this term of office has been forgotten, I shall still be the richer for the insight that these years have given me into the range of Aslib's grasp, and the efficiency of its detective services in the pursuit of information.

The purpose of communication in the social sciences is to transmit exact observations of various aspects of human behaviour. For such communication to be both effective and in any larger sense useful, certain conditions, which are only in part linguistic, must be fulfilled. First, the observations themselves must be as precise as possible ; and if at any point their accuracy is in doubt this must, as a rule, be the subject of separate sentences designed to say so. In passing, however, we may note that even this requirement can be by-passed by exceptional linguistic ingenuity ; amongst the Wintu Indians of California,[1] we are told, a speaker can indicate by the use of five different suffixes whether a statement is based on hearsay, on his own visual observation, on the evidence of any of his senses other than the visual, on circumstantial sensory evidence, or whether it is the result of inference ; and in the Yana language a speaker has to show by the words that he uses whether a statement is vouched for by himself or made on someone else's authority.[2] Sophisticated Aryans may well look with envy on these subtle devices—which remain, it would seem, the monopoly of those generally classified as 'the simpler peoples'.

In the second place, both in the social sciences and in everything else, efficient communication is only possible on a basis of common experience. On the face of it this statement sounds paradoxical, since it would appear to suggest that you can only communicate with someone who already knows what you are going to say. Nevertheless its force is constantly demonstrated in the difficulties which beset communication between those who are nurtured in widely different cultures . I have space here for only one example, borrowed from Mr. Paul Bohannan's delightful account, in a recent broadcast, of the problems that face colonial administrators in their well-meant attempts to introduce democratic elections amongst those to whom these concepts are wholly unfamiliar. The Tiv people of Nigeria,[3] it seems, are nurtured in a 'fierce and rather brutal egalitarianism', and dislike anything that singles anybody out for special attention ; and you will appreciate the gulf which yawns between them and us if I add that they never hold conferences unless something serious has happened which needs to be put right—in which case, the larger the conference, the graver must be the event which occasioned it. The request to the Tiv, therefore, that they should elect representatives to a large legislative assembly created the utmost consternation. Election appeared, not as an honourable civic responsibility, but as an invitation to 'single out some unhappy person to go and confer about some grievous thing that allegedly had not happened'.

Provided, however, that the two conditions of accurate observation and adequate common experience are fulfilled, it is really not difficult to invent words which will precisely describe things ; and words which, moreover, will symbolise the same things at both the sending and the receiving end of a communication : at least it is not difficult to invent words to describe concrete things that can be seen, or handled or indeed perceived by any other of the senses. It is true that professional philosophers detect enormous complications even in this process ; but ordinary people do not ; and in this context scientists (except when they are so rash as to dabble in philosophy) count as ordinary people. Little time is now wasted in argument over the meaning of such terms as airplane, television set, uranium 235 or *primula vulgaris*—though high legal authority had once to be invoked, I believe, to determine whether a stop-me-and-buy-one ice cream cart was, or was not, a shop within the meaning of the Shops Acts. In general, as new things are discovered, new names are readily forthcoming to describe them.

Those sciences, however, which are concerned with the study of human behaviour cannot get very far with words that refer only to what (*pace* the physicists) we generally recognize as concrete physical entities. Some even of the primary observations which constitute their raw material fall outside the limits of what can be directly perceived by the senses : social scientists are, for instance, interested in recording intelligence and emotion, as well as physical stature ; and they cannot make any serious use of their observations without recourse to frank abstractions. And then the trouble starts.

It is a complicated, many-sided trouble, too. For social scientists persist in trying to describe the phenomena of human behaviour with scientific precision, yet at the same time in the language of the market-place, if not of the pub. (Of their still occasional efforts to produce a genuinely technical vocabulary I shall speak later.) In this we have the major source of their many difficulties in communication—the primary reason why social scientists are seldom sure that the phenomenon or the concept which a given word represents is the same to everybody ; why they fall into the error of confusing discussions about words with discussions about the things which those words are supposed to represent ; and why, worst of all, they are liable to become ensnared in grave emotional entanglements.

All these difficulties are interrelated, and they may be illustrated by one or two examples of terms that are unprecisely used. Amongst these must be included, ironically enough, the very word 'communication' itself. At the moment, the study of communication has become fashionable, thanks, I suspect, chiefly to the development of electronic systems and to the corresponding elaboration of information theory in the mathematical sense. Students of communication appear, therefore, to be standing at the frontiers of knowledge, pressing forward into the unknown—a situation which, in the world of science, always carries high prestige. By extending the term 'communication' to fields of study not previously so designated, workers in these areas also are able to attract to their own studies a measure of that added prestige. I do not say that this process is deliberate, but nevertheless I think that it is real. At least it is difficult otherwise to explain current attempts to subsume an immense range of highly diversified phenomena under a single theory of communication. By way of illustration I may refer you to Drs. Ruesch and Bateson's recent work on *Communication as the social matrix of psychiatry*. According to these authors, the performance of any action—picking a rose, for instance—constitutes an 'expressive act' which transmits to an observer 'information about ourself and the rose as well as about the total situation which was conducive to this act'. An observer might, in fact, infer 'a number of things from his own experiences in similar situations. He might conclude that we possess a readiness—or shall we say a preference—for that particular rose at that particular time in that particular situation.' Such statements are indeed at once intelligible and unexceptionable : no one is likely to quarrel with their accuracy ; and the 'messages' contained in the act of picking a rose can be brought within the limits of the Oxford English Dictionary's definition of communication as the imparting, conveying or exchange of ideas, knowledge etc. (whether by speech, writing or signs)'. But before Drs. Ruesch and Bateson have finished, the messages transmitted by any group of people include not only their 'ethical premises' and 'theories of man's relation to the universe and to his fellow man', but others of which both receivers and senders are unaware, amounting to an 'unstated description of their way of living' which they 'transmit . . . to others by living in accordance with its content'.[4] Expanded to this point, communication-theory covers in fact practically the whole range of human behaviour ; and we are left wondering what more it has to offer than a new name for what used to be called the process of stimulus and response.

If communication-theory is a comparative newcomer, my second example—the word 'culture'—has a longer history of trouble. Here I would refer you to the work of two American anthropologists, Drs. Kroeber and Kluckhohn, who, in 1952, published a *Critical review of concepts and definitions of culture*[5] running to over 200 pages and including one hundred and sixty-four definitions culled from their own and other people's writings. With commendable restraint, the authors of this study have, as one reviewer put it, scrupulously refrained 'from adding a one hundred and sixty-fifth formal definition of their own[6] ;' but their work may be judged significant from more points of view than one. Most obviously it shows the fantastic amount of labour necessitated by the absence of any clear and acceptable terminology. That it should even be possible to produce such a work does little credit to our scientific pretensions. In the established sciences a technical term is used in a specific sense ; and, should you not know what that sense is, there are glossaries and dictionaries to put you—note the word—right. But no less significant is the demonstration which Drs. Kroeber and Kluckhohn have produced of the extreme difficulty of distinguishing between verbal and non-verbal discussions in cases where the words used are as slippery as eels. Is this a book about words or a book about things ? Should it be classified under semantics or under anthropology ?—in the 412's or 572's of a Dewey classification ? Even the rule, which I gather is part, so to speak, of the librarian's Hippocratic oath—that thou shalt not classify critically—is of little help here. The intention of the work, it would seem, is to add to our knowledge of anthropology ; but the material necessarily relates to the verbal habits of anthropologists who, it appears, are roughly, but not exactly, consistent in their use of a particular label—much as if some gardeners were to classify all digging tools as spades while others distinguish between spades and forks. If everybody would agree to call spades spades and forks forks, communication would certainly be improved ; but this improvement in labelling would not, of itself, increase one's knowledge of gardening technique or tell us when to use which tool. Nor, by the same token, could more consistent use of the word 'culture' be expected to add to our knowledge of actual cultures.

Yet at the same time the analogy with spades and forks is a little too glib. It is all very well to say that culture should be called culture, just as spades are called spades. Spades and forks are concrete things, and in the event of any dispute about them, examples of each can be produced, the differences noted and appropriate labels, quite literally, attached to the respective articles. That settles the matter. But culture, being essentially an abstract conception, cannot, in any literal, physical sense, be produced for labelling. Some other method must be devised for discovering what is in the minds of anthropologists when they use this word. On the one hand, in so far as the problem is still one of labelling, it remains a verbal matter, but the objects, or rather, as we should say in this case, the concepts, to be labelled, are not altogether clear : some may even be unfamiliar (like a new kind of gardening tool) to the person engaged in labelling them. Hence study of the terms in which anthropologists try to describe what is in their minds may, conceivably, throw new light not only on semantics, but also on the subject-matter of anthropology. That, no doubt, was the intention of the Kroeber and Kluckhohn definitions. Nevertheless, one could almost wish that the authors had added the hundred and sixty-fifth definition—at least if they could have got everyone else to stick to it.

For there is worse to come. Up to this point our terminological difficulties have been discussed on a purely intellectual level : it is a nuisance that people are sloppy in their use of labels, and it would be convenient if we could agree upon standard nomenclature. But at least there is nothing to get angry about, and certainly nothing moral or immoral about the choice of one label rather than another : anything will do as long as we all understand and use it. That, at least, is the only rational attitude in which to approach any question of scientific terminology.

But that is to reckon without the emotional associations attaching to words in general use, and without, in the particular case of 'culture', the passions of Mr. T. S. Eliot. From the opening sentences of Mr. Eliot's *Notes towards the definition of culture* you would suppose that he, too, was concerned with a purely verbal problem. 'My purpose,' he says, 'in writing the following chapters is not, as might appear from a casual inspection of the table of contents, to outline a social or political philosophy ; nor is the book intended to be merely a vehicle for my observations on a variety of topics. My aim is to help to define a word, the word *culture*' ; and the fact that the book is prefaced by Lord Acton's observation that : 'our studies ought to be all but purposeless. They want to be pursued with chastity like mathematics' strengthens the reader's expectation of a low emotional temperature. Almost at once, however, the atmosphere changes, and it becomes apparent that Mr. Eliot is concerned not so much to clarify the actual usage of the word culture as to dictate what he is pleased to regard as its 'right' meaning. 'Just as a doctrine only needs to be defined after the appearance of some heresy,' he continues, 'so a word does not need to receive this attention until it has come to be misused'—adding that he has 'observed with growing anxiety the career of this word *culture* during the past six or seven years'. In fact, he goes so far as to say that 'to rescue this word is the extreme of my ambition'.[7] From this point onwards Mr. Eliot, for all his protestations as to the verbal nature of his task, does, in fact, outline a remarkably comprehensive social and political philosophy, in the course of which he acquaints us with his views on the importance of preserving a hierarchical class structure, on the incompatibility of equal educational opportunity with the survival of the family as an institution, and on other equally controversial matters. Such are the consequences of judging words, not for the accuracy with which they communicate the contents of one mind to another, but for their fidelity to some divinely ordained meaning known only to self-appointed theologians. Mr. Eliot's definitions, by the way, were included in the Kroeber and Kluckhohn collection.

The truth of the matter is that these verbal controversies are only too often screens for a battle for power. That much was known even to Humpty Dumpty. " 'When *I* use a word,' Humpty Dumpty said in a rather scornful tone, 'it means just what I choose it to mean—neither more nor less.' 'The question is,' said Alice, 'whether you can make words mean so many different things.' 'The question is,' said Humpty Dumpty, 'which is to be master—that's all.' "

Time will allow only one further example—and for this I would choose the word 'democracy'. Serious students of political science would find it difficult to do without either this word or another to take its place. Some term is necessary to describe certain forms of government all of which have something in common—I will not say what, lest by implication in so doing I should be found guilty of slipping in a definition of my own. The word 'democracy', however, is loaded with an even heavier emotional charge than that carried by 'culture' ; and if there are 164 definitions of the latter, 'democracy' must surely be able to boast many thousands. Recently, in a brave attempt to bring order into the prevailing confusion, a questionnaire on the meaning of democracy was addressed by Unesco to some five hundred experts in various social sciences such as law, history, political science, sociology ; and a selection from thirty-three of these replies was subsequently published in a substantial volume under the title *Democracy in a world of tensions*. For present purposes it is not so much to the contents of these essays—stimulating though they are—to which I would direct your attention, as to the terms of the questionnaire itself. In this, respondents are first asked to quote evidence on any 'loose' use of the word ; after which follows a passage which I hope you will forgive my quoting at length. 'The largest part,' we read, 'of the indignation manifest in ideological controversies on the word "democracy" is focused, not on *loose use* but on *misuse*. These complaints may be grouped in four classes : (*a*) complaints that the word is used without any *definite meaning* at all, only serving as a catchword, a slogan expected to elicit positive attitudes to the group using it, to its creed, to its policy ; (*b*) complaints that the word is used in *divergent senses*, with the result that people are being misled , (*c*) complaints that the word is used *in new and illegitimate senses,* wrong and improper senses invented to steal adherents from groups that are using it in proper senses as the justified expression of their creed ; (*d*) complaints that the word, though correctly defined and interpreted, is *improperly applied* to countries, to states that do not satisfy the requirements implied in the definition. Taking these distinctions into account, would you let us have your opinion on these points : on what conditions would you find it justified to charge any ideological group with *misuse* of the word “democracy” ?’[8]

One could not, I think, find a more telling example than this questionnaire of the complications—the unnecessary complications—created by the attempt accurately to describe the phenomena of human behaviour without the aid of an exact vocabulary : or of the confusion that results when factual analysis of verbal habits becomes permeated with judgments of value or even with propagandist intentions. Perhaps the measure of our backwardness may best be gauged by imagining any of our colleagues in the natural sciences having recourse to a similar inquiry in order to dispel the ‘indignation’ caused by the ‘loose use’ or ‘misuse’ of some term in their technical vocabulary.

This dismal picture has not been painted from any morbid desire to depress the friends or to comfort the enemies of the social sciences. Far from it. The purpose is to encourage constructive discussion of practical measures to improve our equipment. Advance is in fact possible along several lines ; and in some at least of these I have the hope that help might be forthcoming from those who have skills such as yours, since the problems of classification and of terminology are closely related.

There is, for instance, evidence that it is not always impossible to attach a specific technical meaning to terms used in, or derived from, the vernacular. Sometimes this is traceable to deliberate action, and sometimes it seems to have happened, so to speak, of itself—as the response to a genuine demand for better means of communication, particularly where the phenomena to be observed are changing fast, and old names have not had time to get established or to acquire emotional associations. When the members of new international organizations, for example, found themselves genuinely unable to describe their institutions to one another, the Carnegie Endowment sponsored the production of a *Memorandum on definition and use of certain terms* which has, in fact, helped to standardize the use of such constitutional terms as ‘Federation’, ‘Assembly’ or ‘Council’ as applied to international bodies. Again, one can find a number of ordinary English words which have acquired a perfectly definite technical meaning, without the expenditure of the late Mr. Carnegie’s or anybody else’s money. There is no misunderstanding between demographers who speak of the ‘net reproduction rate’. To economists the phrases ‘propensity to consume’ and ‘liquidity preference’ convey an esoteric content in no way befuddled by the images which these expressions might engender in the vulgar mind. In psychiatry, ‘fugue’, ‘blocking’ and ‘confusion’ have all a well-standardized technical meaning : so has ‘bit’ in information theory. Even in popular speech the words ‘benign’ and ‘malignant’ have acquired a precise significance in medical contexts ; and it is perhaps fair to add that Mr. Eliot himself allows a ‘general’ or ‘anthropological’ sense of the word ‘culture’ which he recognizes as having ‘flourished independently of the other senses’.[9]

A vernacular technical language is thus one solution ; and it has the special attraction that when it does come off, it does so naturally—without the help of terminological conferences and the like. It might, indeed, be of interest to look further into the conditions which are propitious for this process, by tracing the genesis of those vernacular technical terms which have successfully established themselves : I have not myself carried any such inquiry far, but I think it might well be found that a word has the best chance of acquiring a technical meaning when it is applied to some newly-discovered phenomenon or concept : that certainly was true of 'liquidity preference', 'propensity to consume' and 'net reproduction rate'. On the other hand new labels will not stick so well on old bottles ; and in any event, a vernacular technical vocabulary has, as is to be expected, its limitations and its drawbacks. Chief amongst these is the very practical problem that it aggravates the difficulties of communication as between one language and another : the gain in intralingual accuracy may be balanced by interlingual misunderstanding. To quote a case in point : in circles professionally connected with the care of children the English term 'deprived child' has acquired the specific meaning of a child who, however well endowed with the world's goods, has not experienced the affections of happy family life—a technicality which escaped an official translator who offered, as the French equivalent, 'enfant nécessiteux' or 'enfant dont les besoins vitaux ne sont pas satisfaits'. Translation problems, as many of you have good cause to know, are still formidable, and must be given great weight in the construction of technical vocabularies. Even if translating machines, as I learned at last year's Aslib conference, may already be on their way, we must not, I think, tax their ingenuity too far.

A second objection to a vernacular technical language is that it degenerates all too easily into jargon. The ground of complaint here is purely æsthetic ; but it will not, I hope, be dismissed on that account as frivolous. Modern American sociology seems to be developing a language which to old-fashioned ears on this side of the Atlantic has a most unattractive ring. Professor Talcott Parsons, for instance, writing on 'The empirical clusterings of the structural components of social systems', distinguishes, amongst others, between the Universalistic-Ascription Pattern and the Particularistic-Ascriptive Pattern, whilst a subsequent chapter deals with the Situational Role-Specification of Orientations.[10] This may be necessary ; but there does come a point when it is difficult to distinguish between jargon which has a genuine technical function and that which clouds rather than clarifies meaning—which degenerates, in fact, into what an anonymous writer in an American journal has described as 'Gobbledygook'. A declaration, for instance, that the 'process of identification is one of the dynamic factors operating within the relationship of supervisor and learner (as it does to some extent in all relationships)'[11] appears to mean little more than that we learn best from someone we like ; and one wonders in what way the statement that 'the benign impact of a predictable reality on the maturing organism leads to the structuralization of the initially undifferentiated discharge-movements'[12] is an improvement on the simple (and far from novel) proposition that children are most likely to acquire civilized habits if they live in a stable background.

These are, however, but the incidental and unfortunate trimmings of what are, after all, genuine attempts to communicate precise observations or new hypotheses about the behaviour of our curious species. Pioneers should not be judged by their excesses. And there are, of course, alternative methods available. The natural sciences have generally though not always—as witness the mathematical meaning of the word 'function' —eschewed the vernacular when the need arose for a new technical term ; and have drawn instead upon ancient Greek and Latin. On occasion the social scientists might find it useful to do the same. Aesthetically, it is perhaps preferable to invent new words rather than to manhandle old ones ; and those terms that have an obvious classical derivation have, as a rule, the advantage that they create no problem of translation as between a large group of European languages. There are certainly possibilities here ; but not very much has yet been attempted along these lines outside those branches of psychology which are closely linked with medicine. 'Orthopsychiatry' is a case in point : though one that is not perhaps entirely happy, since this term might be supposed to stand for a straight, as distinct from a crooked, variety of the psychiatric branch of medical science. 'Cybernetics' is another newcomer, while in analytic psychology 'superego' and 'id' are well recognized ; and attempts have been made, though not with much success, to establish 'succorance' as the term for an infant's emotional dependence on its mother.

Occasionally, however, the social sciences (particularly criminology) show a disposition to borrow technical language from other disciplines—especially from medicine. The modern criminologist tends to speak not of the causes, but of the 'ætiology' of crime ; of 'diagnosis' and 'therapy' rather than of 'judgment' and 'punishment'. To-day naughty children are sent to 'clinics' instead of to 'reformatories', where they exhibit a 'syndrome' of 'symptoms'. Any full exploration of the significance of this trend would raise issues that go far beyond the limits of the terminological. But I cannot forbear in passing to call it to your attention as a remarkable illustration of the mutual influence of words and the ideas for which they stand. The shift from penology to therapy implies a major revolution in social philosophy—it is a shift from the doctrine that those who do wrong are wicked to the presumption that they are sick. In the relation between the relevant philosophies and the current vocabularies we have without doubt a hen-and-egg situation ; for if the change in outlook antedated the change in language, the latter, unquestionably, if only by what it takes for granted, reinforces in turn the new philosophy. Though it would take us too far to pursue them, there are fascinating by-ways here—for, indeed, one may read the whole focus of a community's interest and attitudes in the history of its language. Think only, in passing, of the significance of the fact that the terms 'internationalism' and 'unemployment' are only of two generations' standing. At the time of the first use of the former recorded by the Oxford English Dictionary my father was already seventeen years old ; and he had reached the age of twenty-eight before the word 'unemployment' was coined.

But—to return to our main theme—every science is dependent upon its equipment—and in this we must give a high priority to an exact vocabulary, dispassionately used. The social sciences are no exception. They can adapt the vernacular or resurrect the dead ; but they must curb their passions and learn to distinguish between symbols and the things symbolized ; to recognize that democracy itself is a bad word if it is inconsistently used to represent even good things.

I have discussed these problems chiefly from the angle of a student of the social sciences. But they lie, I think, close to your professional interests. For the librarian, along with the translator, handles concepts in an atmosphere of Olympian indifference to the passion with which they may be fraught. Just as the translator is concerned only with the exact correspondence between the symbols employed in different languages, so to the classifier the primary task is to determine what a book is about. Both have everything to gain from exactness in the use of terms ; and neither is under any temptation to treat language otherwise than as a symbolic code. The low efficiency of communication among authors who persistently use the same term with different meanings and then fight each other over the 'rightness' of their respective usages can only add to your labours and to your irritations. You at least must appreciate that the standard applicable to ordinary language is the exact opposite of that appropriate to a secret service code : as obscurity is the sole criterion of merit in the one case, so is intelligibility in the other.

It is not, therefore, surprising, though it may well be cause for envy, that your profession has invented a symbolic system or symbolic systems of its own. It is true that numerical classifications (and others constructed on the same principle) were not primarily designed to serve as languages ; but the flash of illumination which struck Melvil Dewey one day and, as he has himself recorded,[13] almost caused him to shout 'Eureka' as he sat in church, steadfastly looking at the preacher but deaf to the sermon—that flash certainly penetrated further than Dewey himself at that moment saw. The problem that tormented him was the constant recataloguing and reclassification made necessary by the fixed location of books on particular shelves ; and his solution, as you know better than I, was to divert attention away from the placing of volumes and towards the classification of their content—using for that purpose the arabic numerals and decimals as being the simplest known symbols. 'The proverb, as he put it, said simple as a, b, c, but still simpler than that was 1, 2, 3.'

The language that has resulted from this approach to what might be called the problem of the physical geography of libraries has great merits. For the language of numbers is the coldest and most thoroughly neutral of all languages : it is, moreover, exact, flexible and completely international. If to-day, across the frontiers and through the curtains that divide our world, nation can no longer speak peace unto nation, librarian can still speak 341.1 to librarian. From better acquaintance with this language we practitioners in the social sciences might, I think, have something to learn—even if we need at times to remind ourselves that fluff is still fluff, however elegantly it may be coded.

REFERENCES

(1) Kroeber, A. L., ed., *Anthropology today* (University of Chicago Press, 1953), p. 569.

(2) Richards, I. A., in H. von Foerster, ed., *Cybernetics* (New York, Josiah Macy, Jr. Foundation, 1952), p. 53.

(3) *The Listener* (13th May, 1954), p. 816.

(4) Ruesch, J., and Bateson, G., *Communication : the social matrix of psychiatry* (New York, Norton, 1951), pp. 33 and 282.

(5) Kroeber, A. L., and Kluckhohn, C., *Culture : a critical review of concepts and definitions* (Cambridge, Mass., Peabody Museum of American Archæology and Ethnology, 1952).

(6) Bidney, D., in *American Journal of Sociology* (March, 1954), p. 488.

(7) Eliot, T. S., *Notes towards the definition of culture* (London, Faber, 1948), pp. 13 and 17.

(8) McKeon, R., ed., *Democracy in a world of tensions* (Paris, Unesco, 1951), p. 515.

(9) Eliot, *Definition of culture*, p. 22.

(10) Parsons, Talcott, *The social system* (London, Tavistock in collaboration with Routledge and Kegan Paul, 1952), pp. xiv–xv.

(11) Rapoport, Lydia, 'The use of supervision as a tool in professional development', *British Journal of Psychiatric Social Work* (May, 1954), p. 7.

(12) L. K., 'Gobbledygook in psychiatric writing', *American Journal of Psychiatry* (December, 1951), p. 475.

(13) Rider, Fremont, *Melvil Dewey* (Chicago, American Library Association, 1944), p. 28.

THE SCIENTIST AS INFORMATION OFFICER

I.

THE VIEW OF THE SCIENTIST

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THE author of a paper entitled 'The Scientist as Information Officer' might reasonably be expected to define the terms 'scientist' and 'information officer'. The tentative working definitions I will offer are for the sole purpose of limiting the scope of the paper, and I am well aware that they are most unlikely to be universally accepted.

Firstly, the scientist. This is a term which many dislike. It has become debased by careless or slipshod use, and it might be said that no self-respecting scientist calls himself one; my only justification in using it is that it is the only short and convenient word which adequately covers the class I have in mind.

By a scientist, I mean a person who has received advanced theoretical and practical training in any of the recognized sciences, who has proved his ability and proficiency either by examination or by satisfactory performance of work which demands such training, and whose work entails the application of his scientific knowledge. This is a nebulous definition which begs such questions as what is a science, what examination level is considered adequate, and so on. The possession of a science degree or diploma cannot always be regarded as sufficient, or the lack of one as a disqualification; some forms of paper qualifications which entitle the holder to letters after his name are easier to acquire than others. For the purpose of the present inquiry, the minimum qualification was taken to be a pass degree in science, or a generally accepted equivalent.

Secondly, the information officer. It is not my intention in this paper to add to the controversy about this term, and I am willing to accept that various terms can be used to describe people who do the type of work I have in mind—special librarians, technical librarians, documentalists, intelligence officers, or even, to use a splendid Swedish title, documentation engineers. For the purpose of this paper, I define the information officer as a person who seeks out, evaluates, interprets and presents information for the benefit of those who need to apply it in practice. Almost invariably libraries provide the main sources of such information; and very frequently, although by no means always, the function of organizing and maintaining the library is combined with the function of using it; the extent to which these two functions merge and overlap is a measure of the confusion which still exists concerning the titles of the people who exercise these functions. The fundamental and essential requirement for an information officer as here defined is his scientific knowledge and training which he uses in his work.

It is evident that, in addition to his scientific training, the information officer also needs to have knowledge of certain specialized techniques for dealing with recorded information ; and in so far as his duties may include the organization and management of a library, he obviously needs training in this also. What such additional training should be, how it is to be acquired, and what qualifications are necessary as evidence of it, are mercifully outside the scope of my paper.

I now pass on to the main theme of my paper, which is to show that information work offers a satisfying career to the science graduate.

The factors which make an individual happy in his work are numerous, complex, and vary according to temperament. Broadly, they can be divided into the mental and the material, and I propose to consider the former first. Probably the most important and the least tangible factor is that the work should be to one's liking, that one should derive positive pleasure from its performance. Later in this paper I will briefly outline some characteristic features of information work which make it stimulating and attractive in itself ; at this point it is enough to say that it is a common experience amongst scientists who have taken up information work to find it appeals to them much more than laboratory work.

Another important factor is scope. By this I mean opportunities for using one's training, knowledge, imagination and experience to the limits of one's ability ; opportunities for creative work, whether it be the invention of a method of indexing organic compounds or the organization of an information department ; and opportunities for extending one's activities with growing skill and experience. I am certain that information work offers scope, in this sense, which is no less wide than in any other work open to scientists. As in other occupations, the successful man will look for such scope, recognize it, and use it to the full ; many apparent frustrations are merely the results of missed opportunities.

Closely associated with scope is a sense of usefulness ; the satisfaction that one is doing a worth-while job which is a positive contribution to a cause in which one believes. Naturally enough, recognition of this by one's colleagues (and employers) is also an asset ; indifference to appreciation of our efforts requires a degree of detachment which only the most philosophical of us can achieve.

This factor, too, is to be found in information work. There are ample opportunities for seeing the results of one's labours, even if the appreciation is not always proportional to the effort. The calls made on an efficient information service provide a good measure of its usefulness ; satisfied customers come again, pass on the good news to others, and the calls on the service grow rapidly. The good information officer is kept busy ; the more overworked he is, the more pleased he should be that his work is valued.

These intangible factors can all be expressed in a single phrase—opportunities for doing useful work that one enjoys. The extent to which these opportunities are grasped is reflected in the degree of appreciation of the work by one's employers, as measured by status and salary.

Admittedly, these are not entirely satisfactory measures of the value and importance of one's work, especially as a basis for comparison with others working under different conditions. The difference between importance and self-importance is great, but the gap between them is small and dangerously easy to cross. The ideal status for a scientist in information work appears to be that of equality with those with whom he has most dealings. If it is below, the position is an unhappy one for him and, in the long run, leads to inefficient use being made of his potentialities ; if it is above, there is a risk of losing that freedom of informal approach which is so important. I believe that, on the whole, most people of normal civilized outlook are happiest when their work entails most dealings with equals, and fewest with either superiors or subordinates ; co-operation with one's fellows is a healthier occupation than the taking or giving of instructions. This state of affairs, another factor contributing to a satisfactory career, is also to be found in information work.

The most important material factor is, of course, salary ; at least to the extent to which it allows one to ensure a comfortable life for oneself and dependants, with a reasonable share of desirable amenities and pleasures. Up to medium salary levels at least, it is possible for graduates in information work to earn salaries of the same order as those received by graduates in other employment, although the opportunities for really senior and well-paid posts are probably much fewer. The chances of making a personal fortune are certainly no greater than in any other form of scientific work, and infinitely less than in a number of other activities.

These, then, are the conditions which I believe to be the most important in making up satisfying employment. To judge how far these conditions exist in practice, I have made an attempt to collect some data from Aslib members by means of a questionnaire recently circulated.

Before I pass on to the analysis of these data, it is necessary to make some qualifying comments. The analysis of statistical results is a skilled task, while drawing hasty conclusions from inadequate data is one of the more popular pastimes. It has often been said that statistics can be used to prove anything ; I must, therefore, make it clear that I am not claiming that anything is proved by the results of this inquiry. The figures indicate certain trends, some of which are very definite ; I propose to point out these trends and leave any conclusions to the audience, with the warning that the sample was relatively small so that rigorous mathematical treatment was impossible, the reliability of the sampling is not known, and any inferences must be treated with reserve.

Now for the results of the questionnaire. This was distributed by Aslib to all members to whom it appeared to apply, i.e. to science graduates, or organizations likely to have science graduates on their staffs.

Great care was taken to ensure that the replies remained anonymous, and to present the results in such a way that individuals could not be identified. Sometimes this meant that the figures could not be broken down as far as might have been wished, as this resulted in very small groups, the composition of which might possibly be guessed. About 160 replies were received, but a few were excluded from the analysis. Most of these few were clearly not from science graduates, and were, therefore, not relevant to the inquiry, and one or two appeared to have been filled in wrongly or so incompletely as to be useless. The final number analysed was 149, of which 90 came from men and 59 from women graduates.

A few forms were accompanied by explanations, comments, and criticisms ; these were all very helpful and the answers were treated as far as possible according to the wishes of the writers.

FIGURE 1.

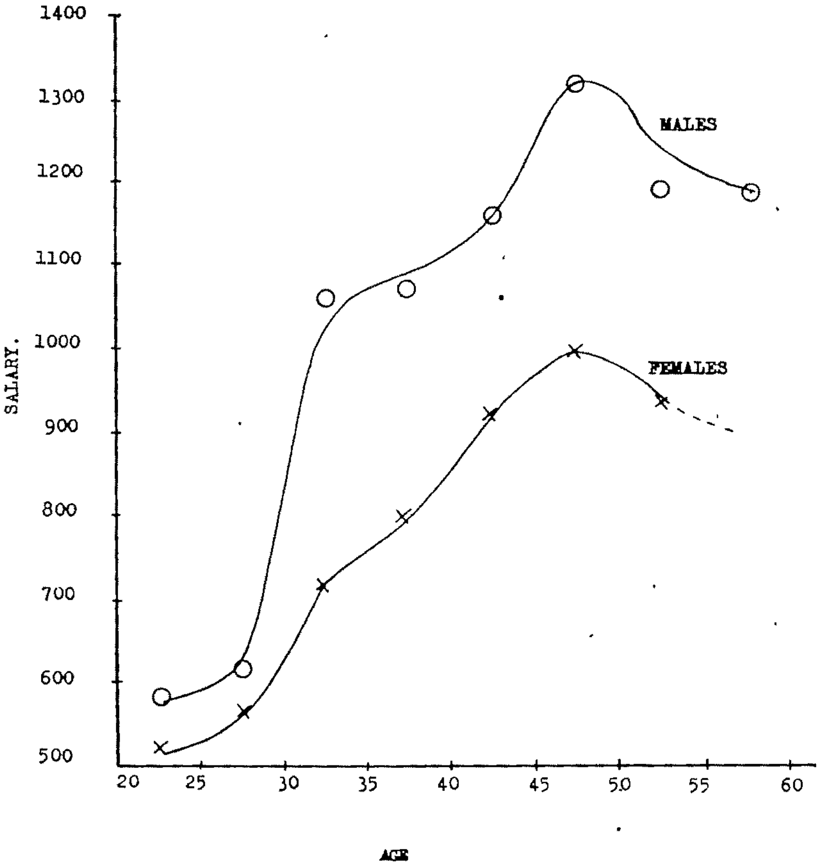

Figure 1. Average salaries of graduates (all classes) in different age groups.

The actual analysis was done with the aid of hand-sorted punched cards, which made it very easy to select any desired combination of the available data.

The results of the analysis are shown in the tables and graph ; I will not repeat them in full, but will only comment briefly on them.

RESULTS OF QUESTIONNAIRE

TABLE 1. (Questions 1 and 2)

Qualifications of Science Graduates

A. Science Degrees	*Numbers*		*Per cent of total*	
	M	F	M	F
Pass	28	19	18.8	12.8
Honours	29	32	19.4	21.5
Higher	33	8	22.2	5.3
B. Additional				
A.L.A. or F.L.A.	5	6	3.4	4.0
Other Subjects	7	4	4.6	2.7

TABLE 2. (Questions 1 and 3) See also FIGURE 1.

Average and Median Salaries by Age Groups

(*All classes of graduates*)

£ p.a.

Age Group	*No. of individuals*		*Average*		*Median*	
	M	F	M	F	M	F
21–25	4	8	575	512	600	500
26–30	10	13	610	565	550	550
31–35	11	6	1,064	716	1,050	700
36–40	11	11	1,073	795	1,150	850
41–45	18	6	1,158	916	1,200	1,050
46–50	10	6	1,325	992	1,250	950
51–55	12	7	1,183	936	1,250	950
56+	13	2	1,188	—*	1,250	—*

* Group too small.

The answers to the first two questions on the form, which related to age, sex and qualifications, are important in relation to salary and status rather than being of interest in themselves. However, it is worth noting that nearly 70 per cent of the total are honours graduates or have higher degrees, and that about 60 per cent are men, so that there is no evidence for the views that the profession is either one largely for the pass graduates, or for women. The results are shown in Table 1.

Question 3 dealt with salaries. It seemed reasonable, when the questionnaire was designed, to stop the range with a top group of £1,300 and over, as the number in that group was not expected to be very large. In fact, it was about 16 per cent of the total, which is very encouraging.

When average salaries were calculated, the mid-point of each salary group was taken to be the salary of all the members of that group, while £1,400 was taken as the average salary in the top group. In addition to average salaries, median salaries were also found, as median values are often more informative than arithmetical averages. The median value of a range of data is the value which cuts the range in half, so that there are as many individuals below the median as there are above in the group.

Figure 1 shows how the average salary of men and women graduates varies with age. The data for this figure, together with the corresponding median values, are shown in Table 2.

Next we come to salaries in different types of employment. The form allowed for eight different classes, but it was found that nearly 90 per cent of the replies came from the first three, namely industry, Government service, and research associations ; the rest were, therefore, grouped together as 'other employment'. Table 3 shows the results : the differences are not large, and do not suggest any significant trends, with the possible exception of a small bias in favour of Government service.

The effect of science qualifications on salary at different ages is shown in Table 4. There is no pronounced difference between the earnings of pass and honours graduates, but those of higher graduates are significantly higher.

It was not possible to show, in the same table, the influence of librarianship qualifications (A.L.A. or F.L.A.), as the total number with such qualifications was only 11, with only 2 or 3 at the most in each age group. The only practicable way seemed to be to compare the salary of each individual with such a qualification with the average salary of all comparable individuals, i.e. those of the same sex, age group, employment group and science degree. On this basis, the average salary of the qualified librarian-scientists is £855, and that of their 'equivalents' without librarianship qualifications is £933. The corresponding median values are rather similar ; they are £850 and £950 respectively.

The aim of question 5 was to find whether science graduates in this type of work are regarded primarily as scientists or as librarians. The answers are shown in Table 5 ; it is seen that over three-quarters of the total definitely consider themselves primarily as scientists. There is no

RESULTS OF QUESTIONNAIRE

TABLE 3. (Questions 3 and 4)

Average and Median Salaries in Different Types of Employment

(All age groups)

£ p.a.

Employment	*No. of individuals*		*Average*		*Median*	
	M	F	M	F	M	F
Government	14	9	1,090	828	1,200	850
Industry	51	35	1,062	757	1,150	650
Research Associations ...	13	10	923	760	1,050	700
Others	11	5	1,113	490	1,400	450

TABLE 4. (Questions 2 and 3)

Average and Median Salaries for Different Qualifications

(Both sexes)

£ p.a.

Age Group	*No. of Individuals*			*Average*			*Median*		
	Pass	*Hons.*	*Higher*	*Pass*	*Hons.*	*Higher*	*Pass*	*Hons.*	*Higher*
21–30	17	14	4	550	557	675	550	550	600
31–40	12	23	4	875	922	1,212	850	950	1,200
41–50	10	17	13	1,050	1,085	1,108	1,050	1,050	1,150
51+	8	7	19	1,012	1,175	1,192	1,000	1,050	1,400

Notes. (1) Larger age groups were taken, to avoid misleadingly small samples.

(2) The numbers of graduates with librarianship qualifications in each of the age groups were too small to provide a reliable indication. The average and median salaries of all 11 graduates with these additional qualifications are £855 and £850 respectively ; the average and median salaries of their 'equivalents' (individuals of same sex, age group, class of science degree and type of employment) are £933 and £950 respectively.

TABLE 5. (Question 5)

Graduates Considered as Scientists and as Librarians

(Numbers of individuals)

	Employment				*Qualifications*	
	Ind.	*Govt.*	*R.A.*	*Others*	*Science Only*	*+ Librarianship*
Scientists	72	18	17	8	113	2
Librarians	8	3	6	3	15	5
Indefinite	7	2	0	5	10	4

evidence for the assumption that all holders of library qualifications insist on their librarian status ; less than half of the small number do so.

The answers to question 6, which refers to status relative to colleagues with equivalent qualifications, are shown in Table 6. The results are very encouraging, as over 75 per cent have either equal or higher status. The prospects for achieving a higher status seem best in industry. The class of degree does not have any significant effect on the position.

Table 7 shows the use made of science qualifications and training, in answer to question 7. There is no evidence of any great waste of scientific training, and the use made of it increases as the qualifications themselves improve.

Question 8 was asked in an attempt to find whether there is any basis to the suggestion that people 'drift' into information work rather than set out with such a career in view. The answers must be examined in the light of the fact that relatively few new graduates are likely to be aware of the possibilities of such a career, or even that it exists. There were indications which suggest that several people who took up the work for reasons other than choice would now regard it as a first choice. The answers are summarized in Table 8.

Finally, the replies to question 9 show the extent to which the graduates are regarded as 'scientists in their own right'. It is clear from Table 9 that the majority are so regarded, and are, therefore, taken seriously as subject specialists ; this is particularly true for holders of higher degrees. The converse need not be true ; if a scientist in information work is never asked his opinion or advice on scientific matters, this may only indicate a more rigid distribution of duties amongst members of a team.

It is interesting to compare these findings with some of the points made by Farradane in his paper on a similar topic in the *Journal of the Royal Institute of Chemistry*, June, 1954, p. 299.

The questionnaire replies provide strong evidence in support of Farradane's view that most scientists in information work are graduates without librarianship qualifications, and that the number with such qualifications who regard themselves as librarians is small.

Results of Questionnaire

TABLE 6. (Question 6)

Status Relative to Colleagues in other Work

(*Numbers of individuals*)

	Employment				*Class of Degree*		
STATUS	*Ind.*	*Govt.*	*R.A.*	*Others*	*Pass*	*Hons.*	*Higher*
Better	14	1	2	2	7	6	6
Equal	57	15	18	6	33	40	23
Lower	7	5	2	2	3	6	7
Not given ...	9	2	1	6	4	9	5

TABLE 7. (Question 7)

Use Made of Scientific Training

(*Numbers of individuals*)

	Employment				*Class of Degree*		
USE MADE	*Ind.*	*Govt.*	*R.A.*	*Others*	*Pass*	*Hons.*	*Higher*
Full	35	11	6	6	13	24	21
Part	50	12	17	10	34	35	20

Note. All but two returns showed 'full' or 'part' use.

TABLE 8. (Question 8)

Choice of Career

(*Numbers of individuals*)

	Employment				*Class of Degree*		
	Ind.	*Govt.*	*R.A.*	*Others*	*Pass*	*Hons.*	*Higher*
First Choice ...	29	3	7	3	10	19	13
Second Choice ...	8	5	0	3	5	7	4
Other replies ...	50	15	16	10	32	35	24

TABLE 9. (Question 9)

Calls for Scientific and Technical Advice

(Numbers of individuals)

	Employment				*Class of Degree*		
	Ind.	*Govt.*	*R.A.*	*Others*	*Pass*	*Hons.*	*Higher*
Frequent ...	19	4	3	7	7	10	16
Occasional ...	41	12	15	6	25	27	22
None	27	7	5	3	15	24	3

The salary figures suggested by Farradane are generally in agreement with those disclosed by the present inquiry.

The interpretative and advisory functions of the information officer, on which Farradane lays stress, are well recognized and used.

The official statement which is quoted by Farradane, that the information officer profession is spurious, finds no support in the results of this inquiry. It seems improbable that the Scientific Civil Service, numerous research associations and some of the largest industrial firms, to say nothing of numerous science graduates, are all suffering under a delusion.

So much for the statistics ; I must stress once again that great care must be taken in drawing conclusions from them, both because the samples are not large, and because the figures ignore many personal factors such as ability, personality and experience, which may affect the final result no less than paper qualifications.

I now pass to some of the features of information work which make it attractive, stimulating and enjoyable.

Firstly, there is great satisfaction to be derived from the actual planning of a scientific information service. The graduate who embarks on this will, most likely, have had experience of the 'other side of the counter', as a user of information services ; he will know what the research and technical man wants, why he wants it, and how he wants it ; he therefore welcomes the opportunity of designing a service with an intimate understanding of the needs and outlook of the user.

If the planning is good, a further and a more lasting satisfaction follows ; the pleasure of seeing the service work, as measured by the increasing confidence of the users. When the users treat the information officer as a colleague with whom they can discuss problems and on whose answers they can rely, rather than a custodian of books and reports, then he can feel that he is on the right lines, and he can then expect to work increasingly hard.

Once this happy state is established, there is much intellectual satisfaction to be obtained from information work—obtaining and evaluating data from a variety of sources ; providing detailed information on new substances and processes ; in having a broad picture of the growth and work of one's organization ; helping to solve technical problems ; and, in doing all these things, ever broadening one's knowledge and interests.

In this paper I have attempted to show some of the more attractive features of information work as a career for science graduates. It is not, and is not meant to be, the whole picture : like any other occupation, information work has its share of drudgery, frustration, disappointments and irritations. Neither was it my intention to consider whether the qualified scientist is necessarily the best person for such work. This is a matter for employers to decide, and for Dr. Lodge, rather than myself, to discuss at this conference. My aim was to sell the profession to scientists, not to sell scientists to employers.

To sum up : information work offers the science graduate good opportunities for material advancement ; for using his experience, knowledge and intelligence in solving scientific problems ; for being a useful and respected member of a team ; and, finally, opportunities unrivalled in any other occupation for realizing how little he knows and how much he has to learn.

In conclusion, I would like to thank the Directors of Courtaulds, Ltd., for permission to present this paper.

II.

WHAT THE EMPLOYER NEEDS FROM THE INFORMATION OFFICER

By R. M. LODGE, M.A., B.SC., D.PHIL.

Research Manager, British Nylon Spinners, Ltd.

> '"It's all been done before!" That was my chief's reaction, ten years ago, when I proposed, uncertainly, to tackle my first small piece of original work. Being an impressionable lad, I was duly dissuaded; but I realize now that it had not been done, and that no young man should be given such advice. Tell him, by all means, that something like his project is sure to be found in the literature, but that this will help rather than hinder him. The published work will probably not cover the exact point he has in mind, and he will be able to add to it and improve on it; few papers say the last word on their subjects. And even if he is repeating someone else's labours, the exercise will train him in the use of a library and in methods of investigation. Should his early efforts never appear in print, he will still not have been wasting his time. "Wanting to work is so rare a merit that it should be encouraged," wrote Abraham Lincoln, and his words can be applied to the beginnings of research. The man who is advised to wait until he finds virgin soil may never set his hand to the plough.'

This extract from a recent *Lancet*[1] was, suitably enough, provided for me by my own Company's Information Officer. He is not, in consequence a paragon; he is just doing his job. We have evolved a *modus vivendi* which is both congenial and fruitful.

The quotation just given gives an indication of just one of many difficulties which stand in the way of the use of information. It will pay us here to analyse these difficulties. It is remarkable, I think, how scientists have, at times, a definite aversion towards being informed. Our reluctance is born of many different sorts of fears: fear of finding that it has 'all been done before'; fear of finding something has been done which, without a doubt, proves our pet hypothesis to be wrong; fear of being misled by wrong information; fear of appearing uninformed; and fear of being delayed in our work. It is perhaps this latter phobia which is the most important.

Not all of you may appreciate what curious methods we research men working at the bench use. A story may illustrate the point I want to make. A work-study expert wanted to analyse the job of a research chemist. Armed with notebook, pencil and stop-watch, he arrived at the laboratory in time to witness his victim come in, take his jacket off and don a white coat, fill a large beaker with water from the tap, place the beaker on a tripod and gauze, light a Bunsen burner and place it underneath, sit down on a laboratory stool, and watch the beaker heat up. 'I understand everything you have done so far,' said the work-study expert, 'but what are you doing now ?' The chemist turned to him and said, 'Thinking'.

In other words, while performing relatively simple manual operations —simple enough for most of them to be carried out by laboratory assistants when routine has been established—our minds are, for at least some of the time, thinking about the next step, testing different theories, and sorting, collating and rejecting evidence about the job in hand. Now, thoughts are evanescent material, so that we may have a mental plan for the next—and one hopes critical—experiment at one moment, only to forget it within twenty-four hours or even less. I do not wish to make excuses for this ; still less to attempt to explain it. I merely state facts.

Consequent on this, you can readily appreciate that the *milieu* for successful research involves having the materials for making the next experiment easily and speedily available. Glassware, chemicals and apparatus of all kinds must be to hand ; and information is just as much a part of the apparatus of research as a balance, a beaker, or a Bunsen burner.

I know that librarians and information officers generally as a race aim at, and indeed pride themselves on, providing what is wanted speedily. I merely point out that the need for speed and facility is much greater when they are serving or form part of an industrial research establishment. The mental urge to do anything in the research field is greatest at the moment of impact of the original idea. The urge decays in time, and dies all too soon. It is your duty to serve the living.

I might, then, cast information officers in the role of salesmen, selling their wares to reluctant customers. At least, your customers will be reluctant at first ; but the rate of disappearance of this somewhat dampening attitude will afford you a measure of your success as salesmen.

When any of us become ill, we go naturally for advice to a doctor. We need an expert's opinion which we can trust. If we contemplate buying a house, we have it surveyed by a qualified man. In all transactions of this sort, the relationship between what I have called the salesman and his customer is based upon mutual trust. The upshot of all this is that an information officer working for or with an industrial scientific research establishment should unquestionably himself be a scientist.

When this is so, the *milieu* is right ; the danger of too much librarianship at the expense of too little information service has been side-stepped. Another danger arises. Cannot the information officer himself act as a barrier between the bench worker and the library or other sources of information ? May not he come to regard himself as the sole source of information, even to the extent of discouraging other people from using his library and sources of information ? Hypothetically, at any rate, this is formally possible. It is my view that it is less likely to occur when the information officer is a scientist ; he then regards himself as a scientist with a specialized technique, and can take delight in one of the greatest pleasures of all scientists, that of seeing other people coming themselves to use, and to profit by, his own technique.

To pursue the salesman analogy a little farther, we should remark that there are really three factors to be considered. I have spoken of the information officer himself, and a little about his customer, the research man. The third factor is the product, the thing which is being bought or sold.

Here, of course, is the *raison d'être* for the information service, for it is information which is the subject of all this trading. And here, too, the salesman and the customer find themselves on common ground. They both agree that each time they are embarking on an adventure into the unknown ; that they are both, in general, ignorant of what is to be the product of an inquiry ; and that the product is, alas, usually amorphous and provides only a half answer. I suppose that I should welcome this latter point, because, without it, there would be no need for research laboratories, and need only for information bureaux.

We have, therefore, the curious position that the salesman knows not what he is about to sell. This is supportable—it has to be, because it is in the nature of things. But the product to be sold is amorphous, unreliable and amenable to subjective assessment.

J. R. Baker, in his book *The scientific life*,[2] gives an ideal example of this :

> 'A trader on the coast of Labrador, George Cartwright, brought some rabbits with him from England. On 24th April, 1778, he wrote in his diary an account of a doe giving birth to young in his dining-room. He made observations on the development of the young, and recorded that on the eleventh day they "began to see". His diary was subsequently published.
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> 'More than a century and half have gone past since George Cartwright observed his rabbits. Ask any zoologist to-day at what age the eyes of the young rabbit open. The matter is not entirely insignificant, because the rabbit is so much used as a type in teaching zoology. The zoologist will at once refer you to Barrett-Hamilton's account of British mammals. This author, however, got his information from a footnote in a book by Harting published in 1898. Although Harting does not give a reference, he must have been quoting from a book by Daniel published in 1801, for every particular, length of pregnancy, age when ears can be moved, age when eyes open, and age when ears can be erected, are exactly the same. Daniel, however, never claimed to be the original observer : he got his information straight from Cartwright. So we are back again in Cartwright's dining-room in Labrador in 1778, apparently the place of origin of the best modern information on the age at which the rabbit's eyes open. The information is based on the study of a single litter of tame specimens in an extra-ordinary environment. One is reminded of the scholars of long ago, who sought to settle once and for all the vexed question of whether mares have canine teeth, not by looking to see, but by reference to the works of Aristotle. Lest anyone should hurry off to study the eye-opening of young rabbits, I must give three warnings. First, the practical difficulties are not as small as might be thought ; secondly, statistical methods must be used ; and thirdly, one should make sure that some tedious German has not already found the mean age of eye-opening to the nearest minute.'

It is common experience that so many of the things we read of in the newspapers, and about which we have first-hand knowledge, are likely to be inaccurate in detail ; yet we can be so pathetically unselective in our sources of technical information.

I firmly believe that here the information officer has a clear advantage over his fellow scientist on the bench, for he manages to develop a flair, very difficult to define and, perhaps, even to recognize, for spotting the doubtful source, the suspect reference, or the inconsistency in the information. This flair seems to come only by constant usage of the techniques he commands, about which I am not qualified to speak. It is, however, to my mind, a most important faculty and one which needs cultivation, for, by its effective use, many man-hours of unproductive work can be avoided. If, then, an information officer is to assess the written word, he is to be a research man, but one whose apparatus is books and sources rather than chemicals and sinks.

Having spoken about what might be called 'the ideal information officer', we might turn to a consideration of the services he provides and the methods he deploys.

I do not want to bore you with a list of the possible services which might be provided. You are well aware of them. Such a list would, however, be considerably greater than a factual list of services provided at any one establishment. I am constantly surprised at the variety of things which information bureaux are prepared to do, and, as many have indicated before me, industry is not really alive to the full possibilities of an information service.

Let us, however, consider the major and better known services. Firstly—the abstracting service. I believe that there is no greater pitfall, and no greater time-waster than an abstracting service, if it is not most carefully watched. *Chemical Abstracts* and *Physics Abstracts*, for example, provide in time a record of papers in their own fields, which surely it is impossible to beat from the point of view of coverage. The fuss—for fuss it is—about abstracting cannot, therefore, be about coverage—but is about time. Papers are published, possibly or, in fact, probably in inaccessible journals, and the abstract appears many months later. The subject index for *Chemical Abstracts* of 1951 took six months to prepare. In 1931 it took only two months. The papers themselves may have taken about a year to progress from manuscript to publication. We see the time between the actual doing of the work in one laboratory and the reading about it in another is already long and is lengthening.

And it is this time factor about which people worry. It is becoming an obsession. 'We should have known about this immediately it was published. It would have saved us so much work.' Thus run the arguments of the protagonists of abstracts. And they are, of course, right—sometimes ; but not often. Modern research work is very much more a co-operative venture than it used to be. Whereas it was the rule, it is now the exception for papers to be published under the name of one author.

In the first 100 papers in the *Journal of the Chemical Society* for 1954, only 13 were by 1 author, 48 by 2 authors, 23 by 3 authors, 12 by 4 and 4 by 5 authors.

The picture is quite different when we turn to an earlier year. For example, in 1905, of the first 100 papers, 47 were by 1 author, and 53 by 2 authors. In 1905 none of the first 100 papers were by more than 2 authors.

The reason for this is simply that most of the easy things have been done. You will perhaps have heard of Einstein's penetrating *mot* to the effect that 'Chemists solve the problems they can solve ; engineers solve the problems they have to solve'. As research becomes more complex, more specialists have to be brought in to solve even a part of a problem. Consequently, the rate at which our knowledge of a subject advances is very much less to-day in most—but not all—fields, so that the time factor becomes less and less important in these fields. These remarks apply, I think, for the fields of physical, inorganic and organic chemistry and for classical physics. Nuclear chemistry and nuclear physics are obvious exceptions.

In these circumstances I see no reason for up-to-the-minute abstracts of fundamental research provided one is not working in, say, the atomic energy field.

Applied abstracts, however, present a different picture. Here—in the field of applied chemistry and physics, spilling over into technology—the subjects still develops fast, and consequently there is here a much better chance than there is in the fundamental sciences that early knowledge of the existence of a relevant paper may save expensive man-hours of fruitless work. Home-produced abstracts have the added advantage of being selective.

I would recommend, therefore, that, in trying to form a view about the worth-whileness of your particular abstracts, you weigh up the value of each type of field you abstract in relation to the speed with which knowledge is advancing in that field.

Another important service which can be provided by an information bureau is the literature survey, and it is one about which I have very mixed feelings. Apart from teaching a man to think, his education in the sciences up to degree level is, in fair measure, a process of teaching him that he can usually find the information which he wants if he looks farther. Are we to substitute for this an introduction to an information officer, who is prepared to provide a literature survey service ? Of course not—but the tendency is there ; and there is the added danger that once a service is provided it will be used unimaginatively, and therefore wastefully, by the lazy, if unrestricted use is permitted.

Again, my own experience of searching the literature has shown me that the happy coincidence is all too frequent. Many times, the bit of information I wanted has been lying in the column of *Chemical Abstracts* opposite to the one to which the index has directed me.

However, there are very many cases where a routine literature survey has to be done, when it is wasteful for a literature survey service not to be provided from within the information bureau. And we can see how, in cases where the searcher is good and is known to have a feeling for the subject, even non-routine searches are successfully done by the bureau.

I say a 'feeling' for the subject because I cannot go so far as does Farradane in an article in *Research*[3] last year. He suggests that the information officer, or information scientist as he prefers to call him, 'should be the *alter ego* of the men at the bench . . ., continually in touch with and understanding their needs and their problems, so that not only can he supply the right information to the right man at the right time, but he can anticipate such needs and make fruitful suggestions on the basis of his reading and contacts'. My view about this is that in any Research Department in which there are more than about fifteen graduates it is completely impossible for one information officer to have anything but the broadest notions about the activities of individual bench workers. He cannot be in continuous touch as Farradane would have it. But, by knowing the general line of attack, the information officer can frequently indicate papers of potential interest or trends in external conditions relevant and important to the job in hand.

In this connection, however, it is worth-while pointing out that scientists themselves have to do an enormous amount of 'useless' reading in subjects not immediately connected with their research. Much of what they read will never be used ; just every now and again a remembrance of something read a long time ago throws light on the immediate problem. Such 'useless' reading is so essential in the long run that it should never be discouraged.

This brings us to a third major service provided by most information bureaux ; the library itself.

The library is more than a bookstore , more than a quiet place in which to read ; it should primarily be a place in which to browse. Books should, therefore, be arranged on open shelving, not in storerooms. And this also means that arrangement is important. There are many different systems for arranging books and periodicals on library shelving. You know far more about this than I could ever imagine there is to know, but from the point of view of one of your customers, I plead for an arrangement which is simple and is, therefore, readily appreciated and is speedy, and for one which is reasonably permanent.

I have already stated that, in my view, an information officer serving an industrial research organization should be a scientist. It would seem that you have, from time to time, become enmeshed in a 'librarian-information officer' controversy.

A library is one of the tools of information officers ; if it is a tool which they must maintain and operate, then information officers should, it seems to me, be librarians too. If, however, the organization and management of the library is not part of an information officer's duties which, I imagine, may well be the case in a large organization, then presumably our information officer need not be a professional librarian This should be regarded as an aside, and is not in any way relevant to my purpose to-day.

Having now, let us assume, provided the ideal information service to an industrial research establishment, what problems remain ? For you, not many except, perhaps, that of finding sufficient money to meet the ever-increasing demands which will be made upon you. For me, however, there are still problems. There is what I may call the 'not too much , not too little' problem. Any time in the library is time away from the bench ; my guess is that not more than one-quarter and not less than one-tenth of a research man's time should be spent either in the library or reading material borrowed from the library. That the actual library usage in my own organization is much less than this could be very worrying for me, if I did not know that a great deal of reading goes on in the laboratories themselves, where each graduate has a desk of his own.

The actual siting of the library and information bureau in relation to the laboratories is, by experience, of the greatest importance in determining the extent to which the services offered are used. We found that library usage doubled overnight when the library was moved from a separate building, thirty or forty yards away from the laboratories, to its present position within our new research laboratory block. I have long since passed the time when I feel any shame in telling you this. The phenomenon is general enough I think for it to be associated with the nature of the research man's activities, and far too general for the easy explanation (that research men are lazy) to be applicable.

In conclusion, if there should be anything which you would wish to distil out of what I have said, let it be this : There are many obstacles which tend to prevent the use of information. A lot of your thoughts naturally turn to what extra facilities you should provide, to what better ways in which you may present your wares. Remember that your customer is reluctant and tempt him with what he says he needs, a high speed of response when he wants it, a high degree of accuracy when he wants that. Your customer is always right.

Finally, I want to make a point about the value of your work as information officers. Probably nine-tenths of the material you supply to your customers will be quite utterly valueless. However, a very small percentage of your product will save man-hours at the bench. One or two odd pieces of information each year will save man-years at the bench. In modern industrial research a man-year costs very approximately £3,000. I believe you yourselves tend to underrate the value of your work, or at least to have doubts about it. You will rarely be told when you have hit the jackpot and provided the key reference. But you do it just the same.

REFERENCES

(1) *Lancet*, vol. 267, no 6831, 31 July, 1954, p. 241
(2) Allen & Unwin, 1942 Ch. 9.
(3) Farradane, J., Information service in industry *Research*, vol. 6, 1953, pp. 327–30.

Discussion

The discussion was opened by MR B AGARD EVANS (Ministry of Works), who recalled the resolution which was adopted at the Royal Society's Scientific Information Conference, held in 1948, and which urged that scientific information officers should enjoy status equal to that of other scientific staff having similar qualifications. It was gratifying that Mr. Uvarov's inquiry showed such equality to be widely established Mr Evans also hoped that Mr. Uvarov's conclusions would be publicized in the technical press, and also be communicated to careers masters at secondary schools so that information as to prospects in the profession might be available at one of the most important sources of supply of potential information officers.

MRS. N F. WRIGHT (Allied Bakeries Research Laboratories, Ltd) thought that consideration might be given to the needs of the employed as well as to those of the employer. If research workers continued to leave their consultation with the library to the last possible moment, it would soon be necessary to train all librarians in thought transference. How could the librarian be kept informed of each researcher's work and interests ?

DR LODGE replied that, in his company, a monthly research review meeting was held by each of the four sections in the Research Department and the Information Officer or his Deputy always attended.

MR. R SEWELL (The United Steel Companies, Ltd) added that the practice of his companies was to provide the Information Officer with a copy of the minutes of all technical committees.

MR. C. W. HANSON (British Scientific Instrument Research Association) said that, in considering the employer's needs, it was useful to distinguish between the routine dissemination of information and the supply of information on request. Much of the former category of work performed was probably inefficient by its very nature, and it should be used additionally to get the 'customer' into the habit of coming to the library for service at the moment when he needed it. The supply of information on request had less chance of being inefficient because it was wanted at that particular time, and was more likely to be acted upon.

Mr. Hanson then questioned the extent to which an information officer—at the moment when he was supplying information—was, in fact, on a basis of equality with the scientific research worker. He thought it unlikely that more than 10 per cent of the average information officer's work was on a subject in which he really was expert. Usually he operated well beyond the limits of his subject knowledge and was basically in the position of a non-specialist doing an auxiliary job for a specialist He could do this satisfactorily by virtue of his mastery of his resources

MR. G. E DENYER (D S.I.R., Building Research Station) thought that the variety of subjects which an information officer was liable to be called upon to handle made over-specialization a handicap. The tendency in most Honours courses in science was towards specialization but information work offered an attractive career to the person who had no desire to specialize. The important thing was to bring information work to his notice before he started to specialize Courses like that instituted at Cambridge in the Philosophy of Science might well provide a suitable discipline for such persons.

MR. S. C. GODDARD (Kodak, Ltd) asked whether scientific specialization was so important. Some 50 per cent of students in classes to which he had lectured were arts graduates working in, or destined for, industrial libraries, and experience showed that they were capable of doing a good job.

MR UVAROV replied that his terms of reference were 'prospects for science graduates in information work' and that the omission of any reference to the arts graduate in his paper implied no disparagement for arts qualifications in this work.

MISS L. G. THOMERSON (Printing, Packaging and Allied Trades Research Association) suggested it would be worth repeating the questionnaire in the light of the comments made in the discussion, say after two or three months and again after two years She pointed out that Table 3 showed that librarians in Research Associations were paid at lower rates than those in Government departments, notwithstanding that research association salary scales were usually based on the scales applicable to Government service. She also considered a differentiation should be made between scientific and technical inquiries in Table 9. In some information bureaux libraries did not form the main source of information

MR. J. FARRADANE (Tate & Lyle, Ltd.) commented on three points. Firstly, he recalled that replies to a questionnaire circulated by the Aslib Education Committee a year earlier had indicated that 75 per cent of employers looked for a science degree in their information officers while the demand for a librarianship qualification was very small There was also a nearly 100 per cent demand for knowledge of some foreign languages. He did not regard an Intermediate qualification as sufficient, since a university course, in whatever subject, imparted an approach to learning and a wider outlook which were absent from a school course.

Secondly, Mr. Farradane said that, while the larger published abstracts had a good coverage, they still could not deal with news items and review articles in the smaller trade journals, and home-produced abstracts, by virtue of being more up-to-date and tailored for the customer, could have a value far in excess of that of more general ones.

Thirdly, he asked Dr. Lodge why, if a Research Director could be intimately aware of the work which all members of his research staff were doing, an information officer should be incapable of doing likewise If a Research Director could not personally keep in touch with the work of all members of the team, he would delegate responsibility to an assistant , so could the information officer. Mr. Farradane gave reasons for re-affirming that the information officer could act as the *alter ego* of the research staff in the field of scientific literature

DR. LODGE thought Mr. Farradane did not appreciate the function of a Research Director in a large research department. Where there were more than about ten graduates, the Research Director's job was, in part, to know less about the work of each member of the research team than anyone else in the Research Department, and at the same time to know more than anybody else in the Research Department about the rest of the company, in order that the Department's activities could be fitted to general Company policy.

MISS G. S. ROM (Nationaal Luchtvaartlaboratorium, Amsterdam) said that she was surprised by the gap between salaries for men and those for women disclosed by Mr Uvarov's inquiry In Holland, no such distinction was made in relation to posts of responsibility.

MR A H. HOLLOWAY (Ministry of Supply, TPA3/TIB) said that Mr. Uvarov's object was to 'sell' information service as a career to the science graduate. A useful point to establish was the proper time to sell it to him—at school, the university or later ? He thought it was probably best after the degree course and preferably after some experience of bench work. It was quite possible for a person who was a failure at the bench to become a good information officer, though nobody should nurture the idea that failure at the bench was a good qualification for information work.

Mr. Holloway also thought it possible that Mr. Uvarov's statistics erred on the side of optimism, since those who had succeeded in their work might be expected to answer questionnaires of this kind about themselves more readily than those who had failed.

Mr. Uvarov agreed that this danger existed.

DR. D. J. URQUHART (Department of Scientific and Industrial Research) said that if Mr. Uvarov had surveyed the entire profession instead of only a small part of it he would probably have found, firstly, that it included more people with ordinary degrees than with any higher degrees and, secondly, that it included more women than men. This was not really surprising—there was an acute shortage of men with good science degrees.

In the second place, said Dr. Urquhart, the discussion had related mostly to large firms with research departments and libraries, but the vast majority of British firms had no research department, no library and not even a graduate of any sort. It was vital to get information into these small firms. The problem was to establish part-time information officers in them rapidly and on a sufficiently large scale to make their presence felt.

MISS M GAUNTLETT (Kodak, Ltd.) asked if Mr. Uvarov had compared his salary curves with those produced in respect of experimental scientists by the Royal Institute of Chemistry and the Institute of Physics.

Mr. Uvarov replied that he had, and that they tended to be slightly higher than his own and to go on rising where his flattened out.

Dr. C. Groeneveld (Royal Dutch Shell Laboratories, Amsterdam), referring to Dr. Lodge's remarks about internal abstracts, said that the nature of the organizations to be served was important in deciding whether published abstracts were sufficient for most purposes. In an organization undertaking long-range research, it was not normally necessary to produce internal abstracts , the main duty of an information department in such an organization was to carry out searches and the published abstracts, provided both general and specialized ones (where appropriate) were held, were one of the means to this end. At the other end of the scale—in the case of the big newspapers, for example, where information was normally wanted at a touch of the button—extensive internal abstracting would normally be necessary.

EQUIPMENT OF CURRENT INTEREST TO INFORMATION WORKERS

By L. J. ANTHONY, F.L.A.

Assistant Director of Aslib

AFTER a short introduction, the speaker referred to equipment in the exhibition.*

'ADMEL MONEX C.2' (Lawes Rabjohns, Ltd.) and 'OZAMINOR' (Ozalid Co., Ltd.)

Each of these is a combined printer and developer which utilizes the dyeline process to produce copies from a translucent single-sided original in from three to fifteen seconds per copy. The process uses a semi-dry method of developing and each machine will take originals up to 14 in. wide. The best results are obtained from translucent originals but copies from opaque or double-sided originals may be produced by first exposing autopositive paper in the machine and processing it on the Duostat hand processor. From this positive copy an unlimited number of dyeline copies may be made. These machines are designed to produce copies from originals which are already in an acceptable form. The cost of a dyeline copy is about 1*d.* for a 10 in. by 8 in. sheet and the process is extremely economical when up to fifty or so copies are required. If, however, it is necessary to type the original before preparing copies, it is cheaper to make a stencil and run the copies off on a duplicator.

CONTOURA PORTABLE COPIER (Contoura, Ltd.)

The 'Contoura' is a portable photocopying machine made in three sizes—double foolscap, foolscap and quarto, and in two lighting strengths —one for reflex document paper and the other for both reflex and autopositive paper. It employs an inflated cushion which presses the sensitive paper against the original and can be used for copying pages in books and periodicals, documents, letters, maps, etc. The copies must, of course, be developed and fixed and the choice here lies between open dishes, a semi-dry method such as the Duostat processor, or a developing machine such as that made and exhibited by Copycat, Ltd. A foolscap negative costs about 3½*d.* by this method and each positive copy taken from it costs about the same. Direct foolscap positives taken from single-sided originals would also cost 3½*d.* and other sizes pro rata.

ELLAMS FLAT-BED DUPLICATOR (Ellams Duplicator Co., Ltd.)

No entirely satisfactory method has yet been devised for duplicating catalogue cards. Spirit duplicators have been found to have certain disadvantages and rotary duplicators are uneconomical for small quantities of each card. A cheap and easily operated alternative is a flat-bed duplicator such as the Bantam 'O' Model. The machine is completely self-contained, costs £4 7*s*. 6*d*. including tax, can be operated by a completely unskilled person after about five minutes' practice and produces copies from a stencil at the rate of one every five seconds. The inking screen can take stencils up to 8 in. by 5 in. and can be masked to take 6 in. by 4 in. or 5 in. by 3 in. stencils. A single 5 in. by 3 in. stencil costs about 1*d*. and when the number of copies required from one stencil is between two and twenty this is a very economical method of duplication.

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* An annotated list of the exhibits *not* mentioned in this paper will be found on p. 289, and a list of the names and addresses of all exhibitors is given on p. 290.

COPYCAT 'VARIMASTER'

The Copycat 'Varimaster', although designed originally for other purposes, would seem to offer a method by which any library can produce a printed catalogue and keep it up-to-date at a very low cost. The 'Varimaster' consists of a sheet of translucent plastic material which, after typing, can be broken down into strips which are inserted into a panel. The panel allows for movement of the strips in order to maintain the sequence of entries, and normally measures 13 in. by 8 in., although other sizes can be made up to suit special requirements. When the strips have been assembled, the panel may be copied by any known contact method. If a comparatively small number of copies were required, reproduction by the dyeline process would be the most economical method, but for larger runs it would be possible to prepare an offset litho plate from the translucent original for reproduction on Rotaprint or Multilith.

MICROCARD AND MICROFILM READERS (A. West & Partners)

The microcard reader exhibited by A. West & Partners is the only one actually in production in this country. The reader is designed to take 5 in. by 3 in. microcards and appears in its present form after several modifications to meet the suggestions of users. The difficulties of designing an optical system which will give an enlarged image of an original by reflected light are considerable, particularly when so many microcards are reduced copies of paper originals, typed or in near-print, in many cases poorly prepared and completely unsuitable for the purpose. Microcard and microprint are in general use in America but the Western European countries tend to favour the use of the microfiche transparency, and, so far, British manufacturers have had no reliable guide to the comparative popularity of these two forms in this country.

The firm also exhibited the 'Kangaroo' microfilm reader, a portable instrument which can be used in library, laboratory or office. The reader is designed for 35 mm. films but can be adapted to take 16 mm. The image is projected downwards on to any white flat surface such as a desk blotter, or the reader may be adjusted to project horizontally on to a light-coloured wall or screen. The availability of such a reader, at a comparatively low price, should give considerable impetus to the use of microfilm in this country.

OFFICE EQUIPMENT

The opportunity was taken to include in the exhibition certain items of office equipment which might find application in the average library. Hawthorn Baker, Ltd., exhibited two 'Cornerstone' collating racks which would be useful pieces of equipment in libraries which have to produce reports, recent additions lists, bibliographies, etc., at frequent intervals and have little space in which to lay out the individual sheets which make up a publication. The 'Lindicator' exhibited by Lindication, Ltd., includes a device for holding any kind of copy so that it is directly in front of the typist as she works, a means of magnifying the particular line being copied and a method of illumination which focuses the light on to the copy, while shielding it from the eyes of the typist. Use of this equipment should reduce mistakes made in typing from catalogue slips and other 'difficult' copy and considerably increase the speed of the copy-typist.

The 'Foldmaster', exhibited by Office Equipment Co., will take sheets up to 13½ in. wide and can, therefore, be used for making manilla folders from sheet card as well as for folding letters, lists, etc., for sending by post, and for preparing publications which are to be folded and stapled.

Rotadex Systems, Ltd., exhibited the 'Rotadex', a compact and portable card wheel which is made in varying sizes to take from 300 to 3,000 cards. This seems to be an ideal method for recording information which is frequently required, usually by telephone, and coloured flasher signals are provided to aid in the speedy location of specific cards.

QUICKBINDE BINDERS

Conventional methods of storing periodicals have certain disadvantages and the introduction of binding cases such as those of the 'Easibind' type met with an encouraging response in library circles. The latest addition to this range of equipment is the 'Quickbinde' binder and folder (Quickbinde, Ltd.) which employs an entirely new principle. The material to be bound is gripped by a powerful spring clip which can be opened only by a pair of levers supplied for the purpose. The spring clips are then connected to the binding case by means of metal rods which slide through loops in the clips and through loops in the hinges which are riveted to the inside of the binder. The clips are made in a variety of widths and the binding cases can be supplied in any size, shape, colour or quality of finish. The method combines the strength of sewn binding with the adaptability of a loose-leaf system and can be used for periodicals, pamphlets, reports, etc., as well as for separate items down to a single sheet.

TAPE RECORDERS

Of particular interest was the 'Reporter' (Boosey & Hawkes), a portable recorder weighing only 12½ lb. which requires no mains connection. This little instrument can be used as a kind of verbal notebook which could be taken into a large reference library and used to record a list of references or other data in a tenth of the time it would take to copy them by hand. 'Reporter' recordings can be played back immediately for checking purposes and the instrument is completely self-contained.

Discussion

The first topic discussed was the problem of storage, particularly of such material as graphs and machine drawings. MR. FAIRTHORNE (Royal Aircraft Establishment) remarked that accessibility was the kernel of the matter—it was comparatively simple to devise methods for storing things away, but retrieving them again was another matter. The speaker suggested that too many libraries tried to store too much ; he thought that after a certain time much of the little-used material in a library could be discarded, on the grounds that, in proportion to the use made of it, it was more economical to borrow material more than ten to fifteen years old than it was to store it The Chairman agreed that the squirrel habits of librarians needed serious consideration and believed that specific central collections might be the answer.

The meeting then discussed the difficulties associated with microcard and microfilm. MISS M. GOSSET (Atomic Energy Research Establishment) said she thought that the true microcard as proposed by Fremont Rider with a catalogue entry plus an abstract on the reverse was the answer to some problems. The microfiche as used on the Continent had also much to commend it ; it was easy to make enlargements from and the optical system for the reader, being simpler, was less expensive than that for the opaque card. It was more difficult to store microfiches in the conventional card cabinet but, having seen a system displayed at Unesco which utilizes pockets, Miss Gosset thought that this difficulty could be overcome. She thought that we should press on in this country with getting material on to cards and asked whether it was possible to obtain suitable emulsions for microcard production in this country.

DR. SCHULTZE (Kodak, Ltd.) said that there was no insuperable technical difficulty in reproducing material, whether printed or typewritten, in microfiche or microcard form. The reduction ratio for these purposes was rarely smaller than 1/35 ; there was a material commercially available which would allow reductions to 1/750 of the original size. Specimens of German and Dutch cameras for microfiche had been imported into this country. He stressed that there was no 'one and only' *best* method of producing micro-reductions ; the choice of process—whether microfilm, microfiche, or microcard—depended on a number of variables, including size and kind of original, frequency and nature of use of the microcopy, accuracy required for re-enlargement, number of microcopies needed, etc.

MR. CAIN (University Microfilms Inc.) said there was a demand in this country for reproductions on 70 mm. film as used by the U.S. Department of Atomic Energy.

MR. VAN ERKELENS said that 70 mm. film was being used in Europe and that there was a suitable microfiche camera on the market selling at about £60.

MR. FARRADANE (Tate & Lyle, Ltd.) asked if there were any reliable *dry* process available for reproducing graphs and similar material where extreme accuracy was required. He wondered what was known and available in this country of xerography.

MR. J. BIRD (Aslib) said that he thought Azoflex were working on this but had no specific information.

MR. C. C. HANROTT (A. West & Partners, Ltd.) mentioned 'true-to-scale' processes and said that photo-printing Trade Houses could undertake work by this process which gives a high degree of accuracy.

ASLIB'S DEVELOPMENT

By Leslie Wilson, M.A.

Director of Aslib

Reported

THE Director said that three main periods could be distinguished in Aslib's development so far. The first, lasting from its foundation in 1924 to about 1940, had been the period of enthusiasms and ideals struggling for recognition—a precious period for Aslib as for all new movements, but one whose intrinsic value should not be over-estimated and whose passing should not be regretted, as some sentimentalists were apt to regret it. The second period had lasted for the duration of the war and a year or so thereafter. In normal times, this would presumably have been the occasion for long-range planning of Aslib's future, but the demands of war and Aslib's precarious finances had both prohibited almost everything but the most urgent tasks. These had been miraculously well done on a shoe-string. The third period had now all but ended. It had been dominated by the need for reorganization and rapid expansion. It had been urgently necessary to ascertain what services members needed ; to plan them, finance them and recruit and train staff to provide them ; to gain self-confidence and the confidence of H.M. Government and of a demanding industrial public, by ensuring that both new and existing services were run at the highest possible level of efficiency ; and, most of all—such are the yardsticks of this material age—to build up a substantial membership, leading to greater income, increased Government grant and, finally, financial stability backed by growing reserves.

Some assessment of Aslib's rate of growth since the war could be made from the fact that its gross income, £4,000 in 1945, was expected to be over £35,000 in 1955. In the same time, membership was expected to have risen from 520 to nearly 1,800. The demands on Aslib's information service had grown from less than 1,000 to over 16,000 a year. A location index, covering the principal countries of the Commonwealth, to unpublished translations of scientific papers had been established. The panel of specialist translators had been immeasurably strengthened in both language and subject coverage, and a panel of subject indexers had been started. A new consultant service for organizations wishing to establish or reorganize a library or an information department had been founded and the use made of it was growing rapidly. A firm policy had been laid down for the expansion of the Aslib library and its implementation was well on the way to completion. Income from the document reproduction service had increased tenfold from £264 to £2,673 between 1948 and 1953. An annual short training course for juniors had been started at the end of the war, and a refresher course for senior staff had been held every year since 1952. Two new quarterly journals, the

Journal of Documentation and *Aslib Proceedings*, had been published and were already firmly established in library literature. An annual index to British university theses had brought considerable prestige to Aslib. Three manuals had been published and work had begun on a new handbook for special librarians and information officers and on a new edition of the *Aslib Directory to sources of specialized information*, last published in 1928. Three branches and seven subject groups were doing useful work, and Aslib also had official representatives on a large number of British organizations and was active in the International Federation for Documentation.

It was clear that, by and large, members were now getting from Aslib the sort of service they expected and were willing to pay a reasonable subscription to get it—many were, in fact, subscribing 100 guineas and 50 guineas a year compared with the basic rate of 10 guineas for profit-making concerns. These services—which not only represented a saving of time and expense to members but were also educational in their cumulative effect—should obviously continue and be expanded to meet increasing demands. Aslib had still, however, to make its weight felt in one field of activity. It was not easily related to bread-and-butter problems and routines but, in the long run, nothing would do more to assist the exploitation of recorded knowledge on a national scale. This activity was research and publication of the results of research. The first requirement was that members of Aslib themselves should try to think less exclusively in terms of clerical routines and gadgets. These had their importance and there was still room even for research into them. The real need for research, however, was at a considerably higher level, and it was there that Aslib's lead was called for. What evidence was there, for example, of the visible and tangible benefits of information service ? Or was the industrialist to be fobbed off with an 'act of faith' explanation —from which he would inescapably deduce that the whole thing was so woolly that nobody dared to attempt a reasoned evaluation ? What weight of evidence had been collected to show what the national pattern of information resources and services should be ? What was the proper scope of information work and what were the training requirements for it—as seen by the employer as well as by the information officer himself ? Was it possible to measure 'output' in information work in terms of industrial efficiency and, if so, could some relationship be established between 'output' and costs ? By what criteria could the optimum level of information service in a given organization be predetermined ?

Finally, the Director said, it was no coincidence that this year's conference programme included papers on 'Communication' by both Dr. Wootton and Mr. Fairthorne. Surely the problems inherent in the communication and interpretation of fact and experience were the very reason for Aslib's existence—as well as that of its members. Much sporadic thought was being given to these problems quite independently in various disciplines. Mr. Fairthorne's paper was clearly written from the standpoint of the communications engineer. A zoologist would probably have based his approach on the central nervous system of the rabbit, a management consultant on functional interdependence in management. There was a need for some organization to provide a meeting ground on which persons interested in communication and working in all these various subject fields could be brought together in an attempt to establish the factors in communication common to all disciplines. By virtue of the range of subjects covered in its membership and of its own fundamental interest in communication, Aslib was ideally suited to such a task. In this and the other research matters which had been mentioned, Aslib had a vast and exciting field of activity before it, if only it had the courage and the energy to launch out upon it.

Discussion

MR. V. D. FREEDLAND (British Hat and Allied Feltmakers Research Association) thought that Aslib's work should remain fundamentally practical The librarian and information officer were mainly concerned with the mechanics of their occupations. That aspect would suffer if Aslib were to drop its interest in the techniques of information work and to concentrate on research. He wished to know into what was research to be undertaken.

MISS M. I. WYATT (J. Lyons & Co., Ltd.) considered that Aslib could not afford to ignore the mechanics of information work, since new members coming into the profession would need the benefit of its guidance in this field. She welcomed the Director's remarks on employers' needs in the field of information and felt that Aslib should make a practice of inviting employers to be present to put their point of view whenever information work was discussed.

MR. J. FARRADANE (Tate & Lyle, Ltd.) said he was sure the Director had not suggested dropping interest in the mechanics of information work but had made a long overdue plea for a more mature and balanced approach to information work by the profession as a whole. The Director had given an impressive vision of the science that documentation could, and should, become, and Aslib's future prosperity depended on the vigour with which that vision was pursued He wished to propose a motion calling upon the Council to set up a research committee to draw up and supervise a programme of research such as the Director had outlined.

MR. C. W CLEVERDON (Royal College of Aeronautics) seconded the motion.

MR. J. SYKES (Furniture Development Council) reverted to the question of the qualities which the employer sought in his information staff and urged that Aslib should give more attention to those needs. In the practical sphere, Aslib was already providing extremely useful services and they should be developed and extended for the special benefit of the smaller and medium size firms

MR. C. W. CLEVERDON (Royal College of Aeronautics) referred to the greater size of Aslib Annual Conferences as compared with fifteen or even five years ago. He suggested that it might be found desirable to arrange two kinds of conferences—one large annual gathering which would bring together all the varied interests represented in Aslib, and a number of smaller group conferences for the benefit of particular interests.

DR. D. J. URQUHART (D.S.I.R.) referred to two surveys conducted by the Department of Scientific and Industrial Research. The conclusion to be drawn was that no more than 1,000 firms in the United Kingdom would be likely to have librarians and organized libraries of their own. If Aslib adhered rigidly to the conception of itself as an 'Association of Special Libraries and Information Bureaux', it would never enrol more than this number of firms. The large majority of firms had less than five periodicals of any sort. In consequence Aslib should regard itself as an organization concerned with the arrangements for supplying all types of available information quickly and economically from its source to its users. Unless it adopted these broader terms of reference, its possibilities of expansion might be exhausted in about five years.

MR. E B. UVAROV (Courtaulds, Ltd., Coventry) asked whether it was fair to draw conclusions affecting the whole of the country from two small surveys conducted in two small towns.

DR. D. J. URQUHART (D.S.I.R.) replied that the statistics on which his remarks had been based undoubtedly related to a small number of firms. However, they had at least been collected as the result of scientifically conducted surveys in which 90 per cent of the industrialists in the two towns concerned had co-operated by receiving interviewers. They were not based on questionnaires haphazardly distributed.

MR. E. R. MCCOLVIN (The Polytechnic) asked Dr. Urquhart if he had available information relative to American industry similar to that which he had mentioned in respect of British industry.

DR. URQUHART replied that he had not, but the D.S.I.R. was taking the lead in trying to persuade other countries, including the U.S.A., to do similar surveys

MR. M. C POTTINGER (Scottish Central Library) wondered whether the Director's research proposals were not rather too nebulous at this stage.

MR B. FULLMAN (British Non-Ferrous Metals Research Association) said that his Research Association had over 600 member firms, ranging from small foundries to very large metallurgical establishments. The Research Association attached paramount importance to personal contacts between its research and technical advisory staffs and the industry This kind of contact, in which practical 'know-how' was transmitted, was even more essential as a form of communication than the literature, particularly where small firms were concerned.

DR. URQUHART agreed with Mr. Fullman, but he thought that there were far too few 'receiving centres' for information in industry and too few personal liaison services between research workers.

Summing up, the Director said that Mr. Farradane had rightly divined that his intention was not to advocate abandonment of interest in the daily bread of information work but to plead proper balance of interest as between this and the intellectual and philosophical implications of the work on which the profession was engaged. He would prefer not to have a formal motion calling for the establishment of a research committee and considered that any research programme could be conducted satisfactorily by means of existing committee machinery.

THE THEORY OF COMMUNICATION

By R. A. Fairthorne, B.Sc.
Royal Aircraft Establishment

SOME thirty years ago, when the laboratory where I worked needed light alloy castings, success depended on divination carried out by the foreman. This hinged upon the effects of spitting in the crucible, and the results beat any scientific method hollow. About five years later we were using more dependable and repeatable, if less picturesque, criteria. This came about because meantime various theoretically-minded people had studied various apparently minor and irrelevant matters such as the behaviour of single crystals of aluminium. Some of the personal skill and experience hitherto needed for routine operations now could be delegated ; at times even to instruments.

Much the same is now going on in our field, though the need for personal (if more elegant) divination in everyday decisions is likely to persist for a long time. Nevertheless, we can separate some purely clerical aspects from those with wider or deeper semantics, and are using experience in these humble, but clear-cut, fields to throw light on more obviously relevant problems. For instance, linguistics has benefited greatly from work on mechanical translation which was deliberately directed on modest but explicit clerical aspects. Newton made sure he understood the fall of the apple before tackling the movements of the moon.

The ideas behind communication theory had been accumulating over many fields for a long time before crystallizing out in telegraphic applications. Its history need not be retold here, nor need I outline current achievements in its natural field. Some indeed argue that it has achieved no more than a misleading terminology for existing ideas and techniques. There is something in this, but the tendency to make things sound more important than they are did not originate with communication theory, nor is it confined to electronic engineering, though it is encouraged to feel at home there. Relabelling implies, at best, a re-interpretation ; at worst, it compels a critical examination of the labelled objects to find out what they really are. Otherwise we are in the state of the home workshop where the paraffin is kept in a whisky bottle labelled 'Methylated Spirits'. Either way there is a gain, though perhaps rather expensively won. We have gained three important principles, though not their detailed application to our problems. This we must do ourselves, for the communication engineer has different interests. In particular he is not concerned with completed messages, but how to deal with bits of them during the course of communication. He cannot do much to alter the temporal order of these bits, because this implies storage and storage implies delay, and delay is what communication engineers are paid to fight. We, on the other hand, deal with spatial collections of completed messages and, after recognition or identification, questions of their ordering and disordering predominate. Finally, the communication engineer has a much narrower semantics, which refers only to the statistical properties of the language of the message, not to its sense or seemliness.

This last is equally true of the clerical parts of documentation, which shunt semantic activities on to input and output and replace them by manipulation of marked objects according to unambiguous rules. Within this system the marks inform the operator of the action to be performed, or the actions decide (inform) which mark is to be made. This kind of 'information' is what communication theory usually deals with. The function of telegraphy is to inform the receiver which particular message has been handed in at the transmitter. It is not concerned with any information that may be interpreted within the message itself. So long as the physical events presented at input are reproduced faithfully enough at output, all the information within the original will have been transmitted also. If not, language would not work.

It is no new discovery that the intermediate stages of communication can be stripped down to purely physical processes whose 'meaning' is covered by the rules for their use. This fact is indeed so obvious that some of its consequences are overlooked. For instance, that designers of typewriters are not necessarily expert in the writing of English, nor of computing devices in the art of mathematics Conversely, designers of deep semantic systems must not dispose lightly of the physical problems raised by the clerical machinery inseparable from their use.

The first principle of communication theory is that inexorable numerical relations exist between the physical processes of communication and what you want to say. Given a certain statement or proposition, its translations into various languages lose no semantic content if the translations are reversible , that is, if the original statement can be reconstructed from them without guesswork by explicit rules. Each of these languages involve certain physical actions that have, in a general sense, a 'cost', and these costs can be calculated. For any set of statements and any criterion of cost there must be* some language or languages in which their handling is cheaper, on the average, than in other languages. Thus in theory a correspondence can be set up between what you want to say, how you say it, and how much it costs to say it in, and translate from that way. In practice the Theory of Communication confines its semantics to the language itself ; to what string of symbols out of permissible strings of symbols in the language is being dealt with. 'Information' in this context is strictly orthographic or grammatical. Rash and over-enthusiastic extension to the everyday connotations of the word 'information' has led to absurdities,† and nowadays information that tells you merely which choice has been made out of a number of previously enumerated alternatives is called 'Selective Information', 'Linguistic Information' or the like. A theory that can deal with what or part of what a message 'stands for' is being developed from various viewpoints. In the meantime, and afterwards, the current theory, whatever its theoretical limitations, has a wide enough field of application to keep us busy. For very many purposes the 'meaning' of a set of symbols is adequately defined as the rules for its use. In a clerical system it is completely defined thus. The original assignment of the symbols and their ultimate interpretation are other matters.

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* On the assumption that the number of distinguishable statements is finite or, at most, denumerably infinite.

† The poem

'Cain and Abel
Built the Tower of Babel.
If they had heeded the canon
Of Dr Claude Shannon,
It would have proved more stable.'

is technically, as well as scripturally, unsound.

The second principle of the theory is that the relations between information and the actions needed to transmit and deliver it are statistical. They hold *on the average,* not necessarily for any particular message. Uncertainty is inseparable from information, because the whole function of information is to reduce uncertainty. Communication theory finds methods of measuring the reduction of uncertainty and uses them as measures of information. Where there is no uncertainty there can be no information.

Some may feel this probabilistic interpretation a dubious basis for action. The idea of a pre-set library mechanism or classification which infallibly produces the right book, and only the right book, dies hard, though it could be possible only if a library were like a gramophone record instead of a keyboard instrument. Action based on probability, as most actions must be, is no less rational and profitable than action motivated otherwise. We keep documents often needed in the past, where they will be readily accessible in the future, and it is a matter of common experience that although the race is not always to the swift, nor the battle to the strong, that is the way to bet.

The danger is not in the use of probability, but in its misuse. The classic argument of Paley, that the presence of a watch on a desert island permits one to infer a designer of that watch, is valid only if one has previous experience of watches and their association with designers. Within the ordinary context of communication engineering this knowledge is available. All the possible events—symbols, letters, words, phonemes, etc.—have been enumerated beforehand and there are observations on the frequencies with which they occur severally and in context. This is enough for designing the system to run, on the average, at minimum cost ; the fuller the observations the less the probable deviations from this average. The basic assumption is that there is some mild uniformity in the events the system deals with. The repertory of permissible events and their statistical properties must persist to some extent. An abrupt change from English to Dutch, say, would temporarily put any system off its stroke, still more so could a change to Minoan Linear B. However, a system can and has been made to 'learn from experience' in the sense that it calculates the statistics of the incoming signals cumulatively and can adjust itself to them optimally in whatever way the designer has decided to lay down as optimal. Design of such a system demands pre-knowledge of the types of change it may have to cope with and some estimates of their probabilities. Once more, though on a different level, valid application of communication theory hinges on exhaustive enumeration of and empirical knowledge about alternatives.

Where this is available, as it is within the operations of any clerical routine, we can usefully define as the unit of (selective) 'information' the information in any statement that allows us to halve the number of equally probable alternatives. If a disinterested and skilful observer informs us that a penny has fallen heads up, he has given us unit information, provided we have already the necessary background knowledge about pennies and their tossing, and do not already know the result. This information is an attribute of our interpretation of observations of events, not of the observations or events themselves ; still less of what the events—signals, calculating machine or voltmeter states, or the like—may 'stand for' (be the names of) outside the system.

The unit, the amount of information needed to resolve an equi-probable dichotomy, is called the 'binary unit of information', and usually abbreviated as 'bit'. Unfortunately, the same abbreviation is also used for 'binary digit' ; i.e. an instance of the binary numerals '0' or '1', which is not information, but a physical state.

On the definition of unit information one can build a measure adequate for strictly clerical happenings in clerical systems. In particular, a statement that informs of the occurrence of an event of *a priori* probability p, conveys an amount of information $log_2(1/p)$. Suppose you were (truthfully) told that one out of thirty-two equally probable alternatives had occurred. For instance, the occurrence of a particular letter in a particular letter-site of a message written with an alphabet of thirty-two letters in a language that used each letter equally often on the average. (All such particulars must be known if application of this measure of information is to be valid.) You would then have received $log_2 32$, which is 5, units of information.* The use of logarithms indicates solely that we deal with the ratio of increase, not with the amount added. The unit of increase is a doubling, or octave, and '$log_2 n$' can be interpreted as 'number of octaves equivalent to an n-fold increase'. The sort of statement that conveys information of this kind is the basic factual statement like 'A is B', 'C is not D'. Clearly, statements deducible from the original by the rules of deductive logic convey no extra information in the sense defined above. This can be allowed for in the theory. Consider, however, mathematical statements. These rigidly determine all their numerical consequences. For instance, the fact that the two thousand and thirty-fifth decimal digit of the numerical representation of π is an '8' is an inescapable consequence of the analytical definition of that number. Nevertheless, most people would agree that it is fresh information about π, though some would question its value while others would spend much money and ironmongery to gain it and the numerical consequences of other mathematical statements. Information of some kind is presumably conveyed by some numerical results.

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* 'log_2', the logarithm to base two, is approximately ten-thirds the common logarithm to base ten. In the absence of any tables it can be calculated with fair accuracy as follows: Divide the number whose logarithm is required successively by 2, n times say, until the quotient, q say, is less than two. Then n is the integral part of the logarithm ; the fractional part is given by $35 (q - 1) / 12 (q + 1)$ approximately.

This example raises several points. A suitable analytical definition of π certainly compels an '8' to be generated as the two thousand and thirty-fifth decimal digit ; nevertheless the statement, 'The two thousand and thirty-fifth decimal digit is an "8",' cannot be deduced from it by the rules of deductive logic. Though computing processes sometimes are reversible in the sense that numerical or symbolic input can be recovered from output, no analytical expression can be recovered from any amount, however great, of its numerical consequences ; nor is computing a substitute for analysis, as many wish to believe. (Computing includes any systematic transformation of symbols, not only 'doing sums'.) Mathematical statements are purely linguistic ; neither true nor false, but either correctly or incorrectly stated according to arbitrary rules. As emphasized above, information is an attribute of the receiver's knowledge and interpretation of the signal, not of the sender's, nor some external omniscient observer's, nor of the signal itself. The information one reads into numerical results often involves the semantic field of their particular application ; and so on.

This list shows how easily we can slip from the narrow concept of 'information' based on the observed statistical habits of symbols, to the far wider concepts of ordinary discourse, which involve also the content of the symbols and the reactions of their users. Bar-Hillel, Carnap and others seem to be correct in postulating two distinct measures of information ; one the 'descriptive' measure we have outlined which uses the Formal Implication of deductive logic ; the other, a 'heuristic' measure, including the other as a special case, which uses some form of the Strict Implication of inductive logic. This last allows us to learn from experience even if we are part of the system experienced. A necessary but less advertised consequence is that it also allows us to make mistakes. Schemes using it must anticipate, as do computing schemes, not the possibility but the certainty of error.

Without invoking Semantic Information we can illuminate the more workaday levels, at any rate, of both the semantic and the pragmatic tasks of documentation using the narrow but clearly focused concept of Selective Information. On the semantic side, clearly there is some connexion between sense and symbols, otherwise we could not send messages nor make some sense out of incomplete or inaccurate texts. Ultimately there is a connexion between information and the complication of the signal that carries it, and the measure of information we have given is really a measure of the average complication. How much can we reduce the complication without losing information ? How much information can we retain if we reduce it still further, either by truncating the messages, or by using (syntactically) coarser interpretation ? We may, for instance, remove letter order (anagrams), or word order (Richens' profiles), or word order and word frequency ('Uniterm'), or forget syntax and treat the message as a string of stems and endings (Richens and

Booth). The last demands an unreformed script whose orthography conveys sense and syntax as well as sound. Much is being discovered by those working on mechanical translation, and much can be discovered by work on documentary classification and other systems. Some very mild analysis of Uniterm systems, for instance, revealed to me that changes of semantic range and interest were sharply reflected in changes of rate of growth of the number of Uniterms used with the number of items catalogued. More profound results should reward more profound and harder workers. Deeper semantic activities also have syntactical correlates, but these are seen more clearly if first we consider some elementary results and then some pragmatic applications of communication theory.

Selective information demands a complete listing of alternatives and statistical knowledge of their occurrence. The first gives the framework within which the system can vary, the second ascribes a metric. Sometimes the alternatives are equally probable and the enumeration gives the information measure directly, but probability is still an essential ingredient. Much of the criticism of Information Theory has been provoked by papers in which standard proofs and results of combinatorial analysis are relabelled in terms of 'information'. Such papers are due more to lack of competence than of conscience. Combinatorial analysis has been studied and its results published over enough centuries for them to be found within hard covers. Thus they are unknown to those taking in each other's typescripts , a habit that does much to sustain the present rate of income tax.

Enumeration by itself gives the nature and extent of the system's variability ; essential information, in the wider sense. Thus simple algebra often suffices to outline the main characteristics of clerical systems. Even where it does not, we are not concerned now with the derivation but with the results. Interest and importance have no necessary connexion with mathematical profundity or difficulty.

The material objects that are the objects of clerical operations have to be marked so that those to be treated the same way are marked the same, and those to be treated differently are marked differently. If there are N varieties to be distinguished we must construct N marks, any pair of which differ by at least one distinguishable characteristic. This demands at least $log_2 N$ distinct characteristics. They may be repeatable letter or numeral forms, words, holes, magnetic or electrostatic patterns, and so on, forming an alphabet, possibly together with different sites for the letters. The last allows us to build composite marks ('words') by concatenating letters.

Thus if we have r letters, each of which can be used once only in a word, and the order of the letters is ignored, we can construct 2^r distinct words (including the blank word with no letters). If the same letters in a different order count as a different word, we can construct approximately $e.r\,(r - 1)\,(r - 2)\,(r - 3) \ldots 4.3.2.1$ words, usually abbreviated $e.r!$, where e is the base of natural logarithms ; to wit, 2.71828 . . . . If letters can be repeated within a word, differences of order are recognized, and words are to be exactly n letters long, we can construct r^n words ; and so on.

Two other systems are important in clerical work. First, that in which the letters of the alphabet are at least as numerous as the things to be marked. Each thing can be distinguished by a distinct letter or even a choice of letters (synonyms). Second, at the other end of the scale are the various graphical or, in computer jargon, 'analogue' systems which have two-letter alphabets ; a repeatable unit, and a blank, zero, or space which may or may not be repeatable. This alphabet, with the appropriate rules, forms the scripts of monochrome pictorial representations, graphical constructions, graduated scales, etc., in ascending order of compactness and sophistication until it joins forces with the longer-alphabet abbreviated number scripts, commonly lumped under the heading of 'Roman'. The script important to us, which can be called the 'chalk mark' script, marks the n-th object with n repeatable units (e.g. n dots or chalk marks, a line or voltage or intensity of n units magnitude) with a blank or blanks to mark the end of a word. Marking can be interpreted very widely ; a document is 'marked' by putting it into a marked pigeonhole, though this kind of marking may be rather ephemeral. In the script described, marking a volume with n repeated units and a blank is equivalent to putting it in the n-th place, and recognition of the mark is equivalent to counting to the n-th site along an appropriately ordered array of documents.

Because any letter of an r-letter alphabet must have at least $\log_2 r$ distinct characteristics or absence of them, this is a measure of its minimum internal complication. Absence of a mark is a letter if it carries any significance.

Any apparatus, biological or mechanical, interpreting words in a given script must be variable enough to assume, recognize, or store r distinct configurations for each letter of a word. Thus it must have a variability of $r - 1$ alternatives for each possible letter site. (If r were unity, there would be no variability, the device could only repeat itself.) Thus $r - 1$ is a reasonable measure of the interpreter's or recorder's complication needed for each letter in a word. In most scripts the number of letter sites (digital places) needed to accommodate up to N words varies approximately as $(\log N)/(\log r)$. In the familiar number script of radix r this is exact. Thus the total complication needed to cope with variability of the vocabulary is at least $(\log N)(r - 1)/(\log r)$, a quantity that increases steadily with r and with N.

In practice $(r - 1)$ must be replaced by the larger number $(s - 1)$, which includes the number of synonyms for the basic r letters the device has to deal with, such as variants in type style or size or in pronunciation. The scripts for mechanical devices should be synonym-free because the complication rises rapidly with s. For similar reasons synonym-free micro-languages must be used in machines if these are not to be exceedingly elaborate and expensive.

Again, in general, $\log r$ must be replaced by a smaller number $\log r'$ unless the letters of the alphabet occur, on the average, with equal frequency. log r' is the average amount of selective information given by knowledge of a single letter of a message. This is greatest when all letters are equi-probable, and therefore independent. This change, also, increases the recognitive complication because it increases the average word length.

Similarly one can assess the complication needed to deal with the order of letters, as well as their recognition, but we will pass on to some illustrative pragmatic consequences. For instance, any reasonably permanent record involves the inscription of some material medium with marks of some given size, which depends on the powers of the reading device. The general cost of inscription can be split into two parts. One is that due to making the same mark over and over again, as in a printing press or in making repeated strokes with the same typewriter bar or in making many negatives of the same document. The other part is due to the variability of the input, such as the work needed to move to different compartments of a typecase or keyboard, or to move a typewheel from one letter position to the next, or to select the right page of the right document for photographing. The first is a function of the apparatus and technique, and is determinate within the precision of the methods of estimation. The second is statistically determinate, it can be known only 'on the average', because it is a function also of the statistical properties of the language it is dealing with ; that is, of Selective Information as has been defined above. As I have remarked elsewhere, in clerical work what matters is not what you say, but how you say it.

To record information at a given rate (bits per second) and given density (bits per square inch, or inch run of line, etc.) a typical length of a printing element will vary as log r', its frequency of operation as $1/\log r'$, its mean free path from letter to letter—if it is a linear device like a typewheel—as $(r' - 1)$. Then the power needed for selection will vary as $(r' - 1)$ for a given density of material or, if the power be fixed, the rate of informational output will vary as $(r' - 1)^{-2/3}$ If alternatives are arrayed in an area, as in a typecase or keyboard, the mean free path varies as $(r' - 1)$, the selective power as $(r' - 1)$, and the output for fixed power as $(r' - 1)^{-1/3}$ Either way, a small r' is helpful, and a large r' clumsy and extravagant. The results are rather more complicated when synonyms are present, but their effect is to make things even worse. This agrees with experience, which has repeatedly shown that large alphabets, such as those including logograms, are not worthwhile. The smallest values of r' occur in the graphical and pictorial scripts with two-letter alphabets. For the chalk-mark system for N objects described above r' is the $(N - 1)$-th root of N. For more pictorial scripts it is smaller though, of course, always greater than unity. Thus material transcription of symbolic sequences is best carried out by facsimile methods fine enough to be legible, but coarse enough to demand neither delicate parts nor high frequencies. This also agrees with experience.

Other clerical operations may and generally do demand their own several micro-languages, and polyglot markings and direct one-to-one translating systems are needed. More exactly, their study is needed, for already they are used implicitly by the human operators of clerical systems.

The languages best suited to machines are usually those worst suited to human operators. Human beings prefer a huge stored vocabulary (high r), insurance against error from the context (lowish r'), and a limited number of routine operations. Reliable and economic machines require limited vocabulary and a large number of simple repeated acts. Neither machine nor human being should have to deal with synonyms during routine operations. By 'machine' I mean any clerical aid, however simple, that does not require the operator to make clerical decisions within the scope of its functions.

The most important group of clerical operations that demand analysis are those dealing with the ordering and rearranging of partially ordered or disordered subgroups. This activity I term 'Marshalling', because the word is used in exactly that sense by railway engineers. A special case is 'sorting' ; arranging a set of marked objects in the order of their markings. Although much attention has been given to this, information is inexcusably empirical, every sorting method being discussed as a special case like a conjuring trick. Some systematic work was done by the punched-card machine makers, because sorting and counting was their first job in 1890, but they have been rather bound to their particular mechanical solution. A very few papers have come from the serial computing world in the last year, because high-speed electronic machines have now developed to such a pitch that they can deal after a fashion, though very quickly, with the operations the tally machines started with sixty-four years ago, but even these papers deal with particular aspects.

Marshalling is fundamental in documentation, applied to the ordering of names and of concepts as well as to documents and marks. Special applications include Access, the arrangement of things on successive levels so as to minimize the average time or effort to find an item, or with that intention. The various retrieval systems, which are techniques for identifying all objects in an unordered array that may satisfy a given specification, all assume that some marshalling classification has been used first. If we consider the simplest type of marshalling, Sorting, whose semantics are the ordinal values of the alphabet used, we see that it is intimately affected by the language used, involving as it does recognition of the marks, knowledge of their cardinal and ordinal syntax, and of the pragmatic operations these call for. It is therefore both a valid and an important subject for Communication Theory. This yields relations between the properties of the marking language and the complication of the recognitive apparatus, the average amount of shunting space required, average power and the like. A useful enumerative result is that, however perfect our language and operations and their matching, to arrange N things in order, on the average $N - \left(1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\ldots+\frac{1}{N}\right)$ or, approximately, $N - \ln N - 0.5772$, things must be moved and the total average displacement varies as $\frac{1}{3}(N^2 - 1)$ for a given size of object. Actual sorting techniques grossly exceed these minima because the necessity for simple machines or operators may well overweigh the advantages of low running cost and high speed. Most methods ignore or destroy any order the collection has already, because to use it the marking of each item must be compared with those of its neighbours ; e.g. 'runs' must be recognized and exploited. Since documents are usually marked in a high *r*′ language—decimal, sterling, or alphabetical—only skilled operators use such techniques. If a more pictorial, low *r*′, language is used far less skill is needed. For example, you will be familiar with the trick of drawing a diagonal line across the top of an arranged set of lantern slides. This automatically marks them in a variant of the Chalk Mark language and makes restoration of order quick and easy. A similar device is sometimes used by those who reinforce chance when playing cards for money. Analysis in terms of communication theory shows all this systematically.

I now pass to the third ingredient of the theory, hitherto disguised by the use of adjectives like 'distinct' and 'distinguishable'. All controlled events used as signals are infested with uncontrolled events and variations that can be mistaken for them and, so far as they are unsystematic, cannot be removed without previous knowledge of the signal. Communication engineers call this 'noise', an admirable name that implies its essential nature even outside its original acoustic context. Contemporary communication theory in fact arose from the successful pursuit of the relation between the power levels of signal and noise and the maximum rate at which you can communicate selective information ; i.e., signals of given complication. In general, noise is combated by repetition, which entails increased power and delay, in the sophisticated form of 'redundant' coding, which is any script in which information about a symbol is carried by the context of a symbol as well as by the symbol itself. Because 'natural' languages are very redundant—an English reader can reconstruct a page of English text from which half the letters have been removed at random—documentation has not had to bother much so far with noise except in its grosser visual and acoustic manifestations.

Things are indistinguishable not only because they are masked or warped by unknown events, but because the observer cannot distinguish them. Whatever the discrimination or resolving power of the observer, things that resemble each other too closely will be indistinguishable or equivalent for it or him Either an observed system is in fact discrete, quantized, or in lumps, or it must appear so. The maximum amount of information that can be extracted from any signal, whether it be sentence, Roman numerals, pointer deflexion, curve or picture, depends on the number of distinct configurations that can be observed in it. This is necessarily finite.* The vague idea that a physical curve or voltage or such-like can carry continuous information for a smart enough observer assumes, first, that a step becomes a slope if only it is small enough , second, that 'continuity' is a physical state, instead of a sophisticated intellectual concept.

As documentary collections increase and merge, the physical size of their clerical devices increases. Consider some of the retrieval systems. If the number of entries is N, and the number of subject or word headings S, the total inscribed area of a Batten ('Peekaboo') file varies as $S(N-1)$; of a Zatocoding file, as $N \log N$; of a Uniterm file, as $(N-1)(\log N)^2$. The only way to keep size down is to make smaller marks. The Batten system started with large holes in large sheets ; at my and others' suggestion it was put on standard machine punched-cards ; recently necessity, not a love of gadgetry, has compelled use, in one very large collection, of photo-electrically scanned pinholes. Small size demands high physical resolution, and shortly we are going to experience its concomitant worries.

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* Or, at most, denumerably infinite, which is still inadequate for continuity.

There is also semantic resolving power. All our experiences are individual and particular, but for convenience we equate or confound them in groups, so that they are not more refined than the level of discussion requires. This is abstraction. If we regard one way of grouping a set of objects as 'contained in' or 'a refinement of' another when all things identified or equivalent in the first are also identified in the second, we can construct a network or lattice of these relations. It will have 'everything', in which all particulars are confounded, at the top, and the complete catalogue of separate items at the bottom. The lattice of all such groupings for a given number of items is known as the Partition Lattice. Various properties and problems connected with it and another lattice are of both practical and theoretical importance in documentation. Many relate to the documentarily desirable systems in which statements are made using the connectives 'and', 'or', but no or the minimum of 'nots'. Some such problems have been completely or partially solved in non-documentary contexts. Clearly it is an advanced form of the enumerative problems of Communication Theory, which can be made also, I believe, to yield a metric appropriate to these problems.

I have spent more time in explaining what the theory cannot do for us than what it can. This is because many people have been deluded by themselves or others into believing that it is a substitute for thought, a mirage that hovers over the parent fields of statistical method and automatic control and computing. However, the one universal rule applies to Communication Theory as to other activities: 'Nothing for nothing, and precious little for sixpence'. With a lot of work, and liberal use of the waste-paper basket, we should get our money's worth.

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Discussion

THE CHAIRMAN, opening the discussion, remarked that those who had read Mr. Fairthorne's paper and listened to his address would see that he was essentially an engineer, for the theme of his paper was economy and engineers might always be detected by their passion for economy. She thought that the question of redundancy was the subject which had most successfully brought together the engineer and people working in the fields of linguistics and semantics. She mentioned several examples of redundancy in language and showed that the speaker's highly rationalized systems of communication would convey certain languages and that those languages would, in turn, convey certain meanings. She wondered if it was possible to get a form of unredundant communication which would also convey his wit.

She wondered why the word 'information', a word in common use, had been chosen by the communications engineer to describe these fascinating concepts. She had a suspicion that this had led to unnecessary difficulties and misunderstandings, amounting in fact to a failure of communication.

Miss B. R. F. Kyle (Royal Institute of International Affairs) pointed out that a distinction had not always been made in librarianship between tools which were intended to be used by the public and tools which were for the use of the librarian only. She asked the speaker if in his opinion the new techniques which he described would make this distinction more or less important ?

Mr. G. A. Shires (Dunlop Rubber Co., Ltd.) thanked the speaker for the stimulating presentation of a subject which had originally been suggested by him.

Mr. J. Farradane (Tate & Lyle, Ltd.) pointed out that Mr. Fairthorne's mathematical techniques would enable us to assess the efficiency of a given operation but would they could give us an insight into the sort of operation that we ought to use. He hoped, however, that they would help to solve problems facing the librarian such as whether it is more efficient to break down a classification into very great detail or to retain broader groups and leave the user to browse along a shelf full of books or through a drawer full of cards. He asked if the mathematical techniques could be used to predict the number of 'marks' required to achieve a given degree of detail in the notation to be used for a given classification.

Mr. B. Agard Evans (Ministry of Works) referred to Miss Kyle's remarks and said that it had always been a matter of some concern to him that users of a classified catalogue always approached it with a rather apprehensive air and suggested that the addition of the subject heading, in plain English, following the classification number on the guide cards might be helpful. Referring to Mr. Farradane's point, he said that sometimes an extremely detailed breakdown of a part of a classification was made and never used, and he felt that an enormous amount of work was often done on giving detailed breakdown without the people responsible clearly visualizing what the end was to be.

Mr. B. Chibnall (Shell Film Unit) felt that ideas had been presented of which advantage should be taken but that most people were rather puzzled as to how to do it. He thought that Aslib might be able to help by arranging for people who were in a similar position to himself, that is working with non-book material, to get together in order to see if any new techniques had been evolved for tackling the problems of breakdown which might have been overlooked by people working with the more familiar medium of books.

Mr. A Thompson (Science Museum) thought that before we can decide how close the classification should be in a particular library we should study how much breakdown is needed by different types of readers. He wondered if the Aslib research programme might investigate this.

Mr. R. G. Thorne (Royal Aircraft Establishment) said that in his opinion many people were only too ready to get up and describe the merits of systems used in their own organizations but without reference to any particular standard and without attempting to assess the efficiency of these systems. He thought that the speaker in his paper had laid the foundation for methods of testing systems and that by building on this foundation we should be able to get some idea of their relative efficiency.

Miss Hanson (S L.A.) felt that the techniques being discussed were as important in the field of public libraries as they were in that of special libraries.

Mr. R. A. Fairthorne, replying to Miss Kyle's question, said that the new techniques would undoubtedly make a distinction between tools for the public and tools for the librarian more important than ever. Replying to Mr. Farradane, he said that this was an important question on which a considerable amount of research was being done, particularly in the aeronautical field. Semantic resolutions were being investigated and the people concerned seemed to be approaching a solution. He thought that this solution could be arrived at more quickly if there were more people working on the problem. Replying to Mr. Thompson's remarks on users' reaction, he said that he was not in favour of this method of approach. In his opinion users very rarely knew what they wanted and he thought that the results obtained in this way might be unreliable.

MRS. N. F. WRIGHT (Allied Bakeries Research Laboratories, Ltd.) thought that there had always been a tendency for librarians to blind the users of their libraries with science, but after listening to Mr. Fairthorne's reply to Mr. Farradane she feared that there was a great danger that librarians would blind themselves with science and lose sight of the essentials of the art

MR. S. C. GODDARD (Kodak, Ltd) suggested that more attention might be paid to the psychological aspect of communicating information. Systems of recording and retrieval should be tried out using the human inquirer as a measuring instrument, so as to see how much of the original information had been understood. It might be that a considerable redundancy was necessary in order to overcome what might be called 'psychological noise'. He quoted as an example the difficulties which had cropped up in the field of colour theory where the final interpretation of a colour depends on the individual and is entirely psychological, although the intermediate steps in communicating colour information might be handled on a physical basis. Colour scientists had found what they term the 'psychophysical' approach to be the most fruitful.

THE CHAIRMAN, summarizing the discussion, suggested that this had been an experimental session which had been more successful than some of those present had originally hoped, thanks to the speaker and to those who had taken part in the discussion. She thought that this meeting of minds between people working in the various fields of communication, linguistics and semantics was of unique importance; indeed, it was probably one of the real frontiers of the advance of knowledge in our time. She stressed the importance to all who write of the techniques, implicit in information theories. Thanks to the discipline of these techniques authors would be forced to examine what they had written with meticulous care lest they should be guilty of the sin of redundancy. She thanked the speaker and said that on this occasion Aslib was most conspicuously fulfilling the function for which it was intended.

THE FUNCTION OF THE LIBRARY IN THE PREPARATION, PRODUCTION, AND DISTRIBUTION OF TECHNICAL REPORTS

By Robert C. Sale

United Aircraft Corporation

AT the first glance the title of this paper appears entirely simple and straightforward. The author learned the hard way that nothing could be farther from the truth. The subject proved to be quite comparable to an octopus, revealing an increasing number of provocative tentacles and thus requiring, in turn, additional investigative work. As this paper progresses it may seem to stray farther and farther from the title but at the conclusion it is anticipated that the excursions will prove justified.

The frame of reference of this paper will be made manifest at the outset. The term 'library' is interpreted to mean those libraries having a degree of specialization of function, that is, a special library. Preparation is concerned with the actual writing, and production includes editing, layout, final draft, printing, cover design, and collation and assembly. Technical reports are those unpublished technical and scientific documents, usually prepared in compliance with government contracts and furnished in specific quantities. Distribution covers the initial transmittal of reports to outside organizations in accordance with a formal list pertaining to a project in a specified subject field. These, then, establish the ground rules by which the author approached and developed his subject.

The concept of the services and functions of the special library has undergone many revisions during the last few decades. To highlight these changes in thinking and to aid in tracing library developments, it has been found desirable to include in this discussion a number of quotations from contemporaries.

In 1909, John Cotton Dana,[1] one of the founders of the Special Libraries Association, defined the special library as the 'library of a modern man of affairs'. While his early definition recognized a collection of books and periodicals as organized for a specialized function, later attempts at definition have been broader and more inclusive. Only six years after Dana's statement, Cutter[2] wrote, 'In order to be useful enough to justify its existence, the technical library must do three things. It must gather the printed sources of information ; it must so arrange, catalog, classify and index these sources as to make it possible to find the information ; it must impart the information to its clients.' Many years later, with an inclination to verbosity, a definition was reached by a group of New York librarians[3] that paralleled Cutter's quite substantially. 'A special library is a service organized to make available all experience and knowledge that will further the activities and common objectives of an organization or other restricted group, with a staff having adequate knowledge in the field of specialization and of the activities of the clientele, as well as professional preparation. Its function is (1) to assemble information from published sources both within and without the library, (2) to secure information directly by correspondence and interview from individuals and organizations specializing in particular fields, and (3) to present this information at the appropriate time and place on the initiative of the library as well as upon request, that it may take an active part in the work of the organization or group served.' It is evident from the last definition that by 1937 the special library was accepting increased information responsibilities, pointing in the direction, although barely perceptible, to becoming the communications centre of the organization served. In 1945 Moriarity[4] presented in succinct terms his interpretation of the function of a special library, 'Typically it is sustained and continued service of securing assessed information, not limited to print, for one group, often in one field of knowledge, but equally often in several fields'. Within a short time after Moriarity's terse definition, came several indications of the expanding responsibilities of special libraries together with the increasing importance of the technical report. Ranganathan[5] wrote, 'In my opinion, it is the technique of classification, cataloguing, circulation work and reference service, necessitated by the contraction of the thought-unit in use, that connote special librarianship'. The micro-thought, as exemplified by technical reports as well as periodical articles, was, no doubt, referred to by Ranganathan in his definition.

The recognition of the increasing responsibilities of libraries with their attendant problems extended even to the international scene as evidenced by Bray[6] who, in writing of the conferences held by Unesco and the International Union of Pure and Applied Physics, stated, 'These events, and similar ones affecting medicine, biology, the social sciences and others, show clearly the determination of subject specialists and librarians to control intelligently and economically the documentation of research wherever it is encountered'.

Technical reports, synonymous in this discussion with technical documents, emerged during and especially after the war as the important, if not the most important, form of recorded technical information. These new micro-thought units created problems and responsibilities that were met by some, but far from all, special libraries. Because of the additional functions of security (protecting military-classified material), subject analysis, storage, and even the production of reports, new terms arose for facilities providing these services, designations such as Technical Information Services and Documentation Centres.

In his recent book, Fry[7] supported the increasing importance of reports when he stated, 'A new and important body of scientific and technical report literature has arisen in recent years which presents new highly specialized problems of library administration. At the present time, more than 75,000 unpublished technical reports are issued annually in this country (referring to the United States) by research projects supported by the Federal Government. These reports, the majority of which are security-classified, are prepared by numerous industrial and university contractors and by Government laboratories throughout the country.' Another statement on the growth of reports and the concomitant problems came from Shera,[8] 'Not only has the totality of recorded material been increasing in bulk and complexity, but it has been altered drastically in its physical form. The printed book, or codex, is no longer the librarians' only stock-in-trade. The advent of the journal, as a major medium of scholarly communication, has been supplemented in recent years by the appearance of the research report, a document that may be released in any one of a variety of forms from typescript through offset, or other near-print techniques, to letterpress itself. Such reports raise many problems for the librarian ; problems of acquisition, storage, description, subject analysis, protection and rejection. Yet they cannot be disregarded, for they are basic to productive scholarship in many fields. Such drastic alterations in the form in which the results of scholarship are recorded and disseminated compel equally unorthodox innovations in library and bibliographic methods.' This emergence of the report as a major factor in the dissemination of technical and scientific information was not unique to the United States as Wright[9] attested when he wrote, 'Report literature is fast superseding the scientific periodical and the journal of the learned society as the most important medium of scientific communication, particularly in those fields of science concerned with national defence'.

In this discussion it would be impossible to overlook what Egan,[10] in the preface to the papers presented at the Seventeenth Annual Conference of the Graduate Library School of the University of Chicago, termed, '. . . the revolution . . . which has been quietly taking place in another field—the field which we have here termed "Communication of Specialized Information" '. There is little doubt but that Egan referred to the relationship between technical reports and library work (whatever the appellation—special librarianship, technical information service, documentation, etc.) and the changes implicit in such interdependence.

The rate of progression of these changes parallels similarly that which has taken place in the fields of technology and science and which Sir Alfred Egerton[11] so aptly described as, 'The last forty years has seen an immense change ; an immense change, too, of outlook. To me it has seemed as if the change came gradually and then the rate of change got more and more rapid and during the last year or two the change has been permanently effected and we have toppled over into a new era.'

One of the important changes in this 'quiet revolution' since the last war has been the emergence of communication centres characterized by the omission of the time-honoured term 'library' and bearing such names as 'technical information service', 'document service centre' and 'technical information group'. In the United States the changes and additional functions which have been quietly assumed by many special libraries have brought a new meaning to 'documentation'. Jackson[12] recently restated the definition which his committee reported in 1951, 'The definition that I prefer is the official S.L.A. definition adopted by the Executive Board in February, 1951. "Documentation is the art comprised of (*a*) document production, (*b*) document distribution, and (*c*) document utilization." In this definition a document is taken to be any piece of recorded information, whatever its form or use. In this way, reports, films, photographs, maps, punched cards, magnetized tape, oscillograph traces—all become documents.' As could be expected, scholarly Ranganathan[13] has recognized these changes in his revised and enlarged definition, 'I have shown the convenience of distinguishing between Documentation Work (preparing documentation list), Documentation Service (making the material documented available either in original or in mechanically produced copies) and of adding Translation Service to these. I now add that the gigantic size to which documentation lists have begun to grow has called for the use of machinery for search in such lists. The invention and the continuous improvement of this machinery and its application in day-to-day work may together be denoted by the term "Documentation Search". I suggest that it will be convenient if the term "Documentation" is reserved to represent the complex of these four processes. The term "Documentation Centre" may be reserved to denote a place where documentation is practised. It may be stated here that the emphasis on micro-thought, by the term documentation, emphasizes also that the beneficiaries of documentation are not the general public, but specialists who dive to great depths in closely defined areas in the universe of knowledge, as an intellectual pursuit.' Taube[14] presented his views on the relationship of documentation and special librarianship when he recently wrote, 'Special librarianship is concerned with the collection, identification, organization, and servicing of items of recorded information (i.e., documents) for the achievement of special purposes. Whatever these "special" purposes may be, as opposed to the general educational purpose of a public library, they determine the nature and scope of the activities designed to achieve them. Documentation as the designation of the total complex of activities involved in the communication of specialized information includes the activities which constitute special librarianship plus the prior activities of preparing and reproducing materials and the subsequent activity of distribution. In essence documentation is an amalgam of librarianship and publishing with the added responsibility of preparing or causing to be prepared the materials to be published, collected, organized, serviced, and disseminated. This last element is the weak spot of our definition. There are those who would leave out the actual initial preparation of material, although it is recognized that documentation does include the preparation of bibliographical and reference material, i.e., the so-called "secondary publications". To the extent that responsibility for preparing primary material is corporate rather than individual and to the extent that the initial preparation is guided and determined by the ultimate purpose of distribution to a special audience, I think that preparation of the document is a part of documentation.'

With the exception of the primary publication function, the definitions of these three outstanding librarians are in very close agreement. Recognizing these additional responsibilities and functions it is little wonder that Strieby[15] was prompted to write, 'Trends in organizational relationships appear to be closely related to increasing emphasis on the library as a communication centre, supplementing its traditional functions of acquisition, organization, and dissemination of information ; . . .'.

From the preceding discussion it is evident that the functions and responsibilities of the special library have multiplied until at the present time the library is, or ought to be, emerging as the communications centre of its organization. Many special libraries are fulfilling their potentialities by performing such functions, foreign only a few years ago, as records management, specifications and blueprints control, archives organization, and preparation and distribution of technical reports. To illustrate a special library which is carrying out the various functions comprising the complex of communications the following is quoted from a recent annual report of the Cornell Aeronautical Laboratory,[16] 'The library serves the vital role of information centre of the Laboratory. . . . Its staff procures, indexes, abstracts, and distributes all forms of technical literature, including books, reports, periodicals, and government and institutional publications. It prepares and distributes semi-weekly accession lists of new literature to all technical personnel. It compiles comprehensive and critical bibliographies for technical proposals as well as for initial stages of research projects. It prepares translations of foreign information. It assigns project and report numbers, and edits and distributes all reports. Another of its functions is the automatic distribution of new information on special subjects to interested research personnel. In addition, the Library edits papers published by staff members and secures and distributes reprints.'

By private communication the author recently surveyed several of the larger, non-governmental organizations in the United States which produce technical reports in substantial quantities. In each instance the question was raised as to the responsibility of the library to its organization for the preparation, production, and distribution of technical reports originated within the organization. The functions covered were . (1) Editing, (2) Preparation of Final Draft, (3) Assignment of Report Number, (4) Printing, (5) Collation, (6) Distribution (primary and secondary), and (7) Security Cognizance.

While the results of this survey reflect a very small number of organizations, a total of eleven, it included industrial concerns, universities, and non-profit research establishments all maintaining large research and development facilities and, of course, technical libraries. It is interesting to note that, with the exception of three, each of the organizations has a formal reports group, i.e., editing and production, to carry out some of the functions enumerated above. Of far greater importance to this discussion, 77 per cent of these reports groups are under the administration of a special librarian (although the titles vary from 'Supervisor, Technical Information Services' to 'Assistant to the Director'). In 72 per cent of these organizations the library, *per se*, is responsible for one or more of the functions previously specified.

The results of the survey are tabulated herewith. The first column gives the various functions associated with the development and distribution of reports. The second column reflects the percentage of the reports groups responsible for each function. The third column reflects the percentage of libraries directly connected with each function. As noted previously, several of the formal reports groups are an administrative part of the library organizations and thus there is some duplication in the second and third columns. The tabulation is as follows :

	Function Responsibility	
Function	*Per Cent of Reports Groups*	*Per Cent of Libraries*
Preparation (writing)	0	0
Editing	87	27
Draft Preparation (final typing)	87	45
Assignment of Report Numbers ..	100	45
Printing (including covers)	100	45
Collation and Binding	100	45
Distribution (primary and secondary) .	100	63
Security Cognizance (receipts, handling, etc.)	100	63

Excepting preparation and limited editing experience, the Library at United Aircraft Corporation has, for several years, assumed those functions outlined above for technical reports prepared and issued in conformance with the requirements of various projects. In contrast to Taube's[17] philosophy regarding the preparation of primary reports, the author has never been able to reconcile the writing function as a feasible and justifiable responsibility of a special library. This writing function is, of course, in reference to those reports for which the research and experimental work have been accomplished by personnel outside the library staff, as outlined in the frame of reference at the beginning of this discussion.

The editing function, however, can very well be the responsibility of the library, as implied by Gray[18] when discussing the faults of technical documents and how to correct them in his paper on unpublished reports, 'Some six or seven years' experience as supervisor of the technical reporting activities in two research laboratories convinced me that, assuming the author has something worth reporting, most of the faults of technical reports result from his being so concerned with *what* he is writing that he neglects to worry enough about *how* and for *whom* he is writing it. Specifically, I think this shortcoming tends to make him commit one or more of four major sins. The first of these is "poor choice of title". . . . Second, is the lack of logical arrangement of material in the report. . . . Third, is what one may call over-indulgence—in obscure phrasing, polysyllabism, and the use of idle words. . . . Finally, there is the toleration of real or apparent gaps and "*non-sequitur's*" in the argument. . . The remedy is careful, pre-publication, critical review by someone who can read the report intelligently but who preferably is not an expert in the subject area with which it deals.'

Other scientists have also approved the library as the unit to be responsible for editing ; Schulz and Pfeiffer[19] wrote, 'A well-equipped library with personnel trained in both library science and in the subject field can undertake a variety of other jobs which must be done. . . . Some things which seem most suitable as library responsibilities are : the editing of papers for publication, . . .'.

The author has experienced considerable opposition on the part of technical people to the proposal that a library assume the responsibility for editing their reports. However, one often wonders whether the technical man realizes that reports are important as a public relations media as well as for their technical value. Turning again to Gray,[20] he set forth the importance of the report some years ago when he stated, 'Perhaps, the initial step in the discussion should be the establishment of a case for the importance of technical reports. . . . In my opinion, to establish such a case it is necessary only to answer the question, "What does a research laboratory produce ?" In an automobile factory, labor and raw materials are consumed and automobiles come off the assembly line. What comes off the assembly line in a research laboratory ? To some extent material objects and prototype gadgets, to be sure, but for the most part, the product is increased knowledge packaged in the form of technical reports. The composition, quality and appearance of the major product of any organization is clearly of some importance.'

To the author it seems logical that the responsibilities of the library, which already encompass so much of the communications complex, should be enlarged to include the production and distribution of technical reports. That these activities are recognized in Holland as being directly connected with library responsibilities was corroborated recently by Rom[21] who wrote, 'In my own case, my official title at the N.L.L. . . . is . . . Chief of the Library and Documentation Service and Publication Engineer. . . . This job of Publication Engineer involves the standardization of the publications . . ., the supervision of their contents as to scientific class in consultation with the section-chief, as to language . . ., subdivision, references, etc., the translation into English . . ., the negotiations with the printer and ultimate check of the proofs, the instructions for the type-room and reproduction department, the distribution, mailing list and exchange agreements with other institutes. In this way the complete survey on incoming and outgoing literature is in one hand, which has many advantages.'

As to the personnel qualifications and procedures relating to these editing functions there is, of course, no standardization, but some generalizations are applicable. The editorial—or, as the author prefers, reports preparation—group should consist of a minimum of three persons. The head of the group should meet these requisites : experience in technical writing, a background in science and technology but not a specialist in one small field, higher education in English, and the ability to work co-operatively with technical and scientific personnel in order to inspire confidence in the various phases of his job. As Gray[22] commented, 'I think the tact and approach of the reports editor is immensely important. I believe much of the good relations we had between the Reports Office staff and the scientists was due to the fact that no edited copy was ever issued without the scientist having had a chance to see whether the editing might have changed some of his science, and technical accuracy was always given top priority. Under these conditions we invariably found that the technical man eventually, even if not right at first, welcomed the editorial help and was glad to have his manuscript cleaned up as to grammar, sentence structure, logical arrangement, and so forth.' The second person should possess the proved ability to (1) prepare acceptable, well-defined technical illustrations, (2) prepare the format for illustrations, sized to their importance, and (3) provide artistic report covers styled in keeping with the type of project and organization served. The third person should be a top-grade typist of above average speed who can provide neat, correct copy and be able to work unruffled under considerable pressure.

It has been the author's experience that, excepting the memorandum type of report which has few copies and is prepared for limited, internal department use, the final draft, i.e., the original, can be produced effectively and economically on a duplimat master (paper plate) using an electric typewriter with a carbon paper ribbon. These plates can then be used directly on a multilith press without the necessity for the photographic and attendant processes. This process is relatively inexpensive and will reproduce acceptable copy in almost any quantity. Because the figures in technical reports often contain important detailed work, they are usually copied photographically and the resulting negatives transferred to metal or paper plates which are then run on the multilith press, the same as the duplimat plates. For an enlarged treatment of this subject the author recommends Mixon's[23] recent paper which includes not only reproduction methods and equipment but also such topics as collation, stock for text and covers, and comparative cost figures. The International Federation for Documentation[24] has recently issued a useful publication on this subject covering the various methods and equipment for document reproduction.

The initial distribution of reports prepared on government-sponsored research projects is made in accordance with formal lists. As the majority of these reports are security-classified, extreme accuracy and vigilance are required, since errors, of course, cannot be tolerated. One must be thoroughly indoctrinated in the diverse regulations covering the various security categories and be familiar with the accepted receipt systems so as to ensure the transmittal of the material safely and without compromise.

As a specific example of the growth of special libraries, and especially the increase in technical documents, some statistics for the library with which the author is connected may be of interest. In 1945 the collection of the United Aircraft Library comprised less than 1,000 books, approximately 14,000 periodical issues, and about 5,000 technical reports. At the end of 1953, only eight years later, the library had received a total of

5,000 books, 41,000 periodical issues, and 47,000 reports. As to be expected from the emphasis in this entire discussion, technical reports accounted for the greatest increase.

This influx of recorded technical information placed demands on the acquisition, organization, and dissemination functions that could be met only by additional personnel. In 1945 there were six persons on the library staff, while at the present time the personnel numbers twenty-two, including two persons at a branch library that was opened last year. It now appears that one or two more people will be required in the near future.

These increases, of course, were reflected in the circulation and cataloguing services. The annual circulation has grown from 12,500 items in 1945 to 90,000 in 1953 while the number of items catalogued has jumped from 3,500 in 1945 to 13,000 in 1953.

The foregoing discussion has indicated throughout the emergence of the special library as the information centre of the organization which it serves. As the present is prologue to the future, it can be anticipated that equally important changes will be witnessed in the next few decades as have already taken place.

By raising several questions the author will attempt to anticipate some of the future developments. In view of the space problem becoming generally more and more acute, will the library's entire collection, or at least the majority of it, consist of micro-reduced material ? Also relating to the space problem, especially in a library serving research and development personnel, is there a feasible procédure for determining what and when to discard ? Will literature searching be accomplished in a matter of minutes, perhaps seconds, by electronic computing machines ? If bibliographies and various library statistics are compiled by electronic computers, will the special library become dependent on scientists and technologists, such as mathematicians, to a degree yet unrealized ? Is it time that the common practice of charging library costs to general overheads was revised so that the major users, such as departments of an organization, absorb their fair share ? In the author's library a procedure was adopted recently whereby the service to the Manufacturing Divisions of the Corporation were calculated from annual circulation and reference statistics and the cost of the library for the current year was apportioned to each Division on the basis of these resulting percentages.

To the present time much of the thinking in the library field has been concentrated on the problems of acquisition, organization, and dissemination, while little, if any, attention, excepting the usual index or reading list, has been paid to the transfer of useful data to the brain cells of the potential user. Is there any way to insure that recorded information of value to various users will be studied ? In other words, how can information be injected into the heads of the persons to whom such data are germane ?

In concluding this discussion it is appropriate to leave with you the thoughts of two eminent librarians. First the words of Clapp,[25] 'Under the headings of initial publication and distribution, registration, secondary publication, and retrieval, I have merely touched the surface of the many jobs to be done. . . . A special library or a technical information centre can, it is true, set up shop with a few indexing journals and a file case of ephemeral material and unpublished reports ; it may have the full intention of giving a merely parochial service ; but the moment that it perceives—as it must—that its work is just one part of the whole informational process, at that moment it inevitably incurs even if it does not assume a share of the responsibility, which is incumbent upon all participants in the process, for seeing that the jobs which I have enumerated eventually get done.'

Second, the comments of Besterman,[26] '. . . it must always be remembered that librarianship, and more particularly special librarianship, is a pragmatic science : if a particular method achieves a given end in the given circumstances, then it is a good method for that purpose'. It is this practicality of the special librarian coupled with his boldness to try the unorthodox processes and procedures that augurs the eventual success of completing the whole informational cycle, and results in the conclusion that the administrative unity evident among the activities of acquisition, organization, dissemination, production, and distribution of recorded information will require its incorporation in a single entity, the special library.

REFERENCES

(1) DANA, J. C. : The President's opening remarks. *Special Libraries,* Vol. 1, January, 1910, pp. 4–5.

(2) CUTTER, W. P. : The technical library's field of service. *Special Libraries,* Vol 6, November, 1915, p. 150.

(3) RANKIN, R. : Finally—a definition of special library. *Special Libraries,* Vol 28, December, 1937, pp 371–2.

(4) MORIARITY, J. H. : The special librarian—How special ? *Special Libraries,* Vol. 36, February, 1945, pp. 39–46.

(5) RANGANATHAN, S. R. . Special librarianship—What it connotes. *Special Libraries,* Vol. 40, November, 1949, pp. 361–7.

(6) BRAY, R. S · The Physics Abstracting Study of the American Institute of Physics. *Special Libraries,* Vol. 40, September, 1949, p. 250.

(7) FRY, B. M. : *Library organization and management of technical reports literature.* (The Catholic University of America Studies in Library Science, No. 1) Washington, D.C. The Catholic University of America Press, 1953.

(8) SHERA, J. H. : Emergence of a new institutional structure for the dissemination of specialized information. *American Documentation,* Vol. 4, Fall, 1953, pp. 163–73.

(9) WRIGHT, R. C. . Exploiting report literature. *Aslib Proceedings,* Vol. 5, November, 1953, pp. 341–4.

(10) EGAN, M. E., ed. · The communication of specialized information. *American Documentation,* Vol. 4, Summer, 1953, p. 11

(11) EGERTON, SIR ALFRED : Information and industry : a general survey. *Aslib Proceedings,* Vol. 4, August, 1952, p. 112.

(12) JACKSON, E. B. : Inside documentation. *Special Libraries,* Vol 45, April, 1954, pp. 151–7.

(13) RANGANATHAN, S. R. . Why documentation ? *Aslib Proceedings,* Vol. 4, May, 1952, pp. 105–8.

(14) TAUBE, M. . Special librarianship and documentation. *American Documentation*, Vol. 3, Summer, 1952, pp. 166–7.

(15) STRIEBY, I. M. : Organizational relations of special librarians. *Library Trends*, Vol. 1, October, 1952, pp 173–88.

(16) CORNELL AERONAUTICAL LABORATORY, INC. : *Annual Report*, 1951. Buffalo, N.Y. C.A.L., 1951

(17) TAUBE, op. cit., p. 166.

(18) GRAY, D. E. · Organizing and servicing unpublished reports *American Documentation*, Vol 4, Summer, 1953, pp. 103–1[illegible].

(19) SCHULZ, R. F., and PFEIFFER, G. H. · Research man's helpers service personnel and facilities, *in* Furnas, C. C., ed. : *Research in industry*, N.Y. D Van Nostrand, 1948, Chapter XVIII.

(20) GRAY, D. E. . Research reports—Their form and usefulness. *Proceedings of the Conference on Administration of Research*, October 6–7, 1947. State College, Pa., Pennsylvania State College Bulletin, School of Engineering, Technical Bulletin No. 29.

(21) ROM, G S. : Correspondence on 'The Documentalist'. Aslib, Aeronautical Group, *Newsletter*, No. 7, May, 1954, pp. 12–14.

(22) Personal communication to the author from Dr. D. E. Gray, dated May 14, 1952.

(23) MIXON, R. E. . Reproduction of technical papers ; Paper presented at the 'Workshop on the Production and Use of Technical Reports', April 13–18, 1953, at the Catholic University of America.

(24) INTERNATIONAL FEDERATION FOR DOCUMENTATION : *Manual on document reproduction and selection* (FID Publ. No. 264.) The Hague, International Federation for Documentation, 1953.

(25) CLAPP, V. W. The problem of specialized communication in modern society *American Documentation*, Vol. 4, Summer, 1953, pp. 83–90.

(26) BESTERMAN, T. : Preface in Wright, J E. *Manual of special library techniques* London, Aslib, 1945.

A BIBLIOGRAPHY OF GUIDES FOR TECHNICAL AUTHORS

By B. C. Brookes

Presentation of Technical Information Discussion Group

THIS bibliography is not comprehensive, it is restricted to books which are both readily available at the present time, and which, in the experience of the compiler, have been found to offer most practical help to the technical author.

The bibliography is limited to books which are of *general* use. For specialist authors such as chemists, metallurgists, mathematicians, or economists, further specialist books of reference would also be needed, but no attempt has been made here to meet any of these multifarious specialist needs. The editors of many specialist technical and professional journals now provide contributors with helpful pamphlets which list their editorial conventions and directions to authors; contributors to such journals are strongly advised to study the relevant pamphlet, if one is available, before preparing their papers.

Finally it is emphasized that these books can aid the author in only the more superficial aspects of his work. They can help him to write his paper only if he has something to say and a clear purpose in saying it.

1. AGG, THOMAS R., *and* FOSTER, W. L. The preparation of engineering reports. New York and London, McGraw-Hill, 1935. 192 pp. illus. tables, diagrs. 30*s.*
2. BELL, R. W. Write what you mean. London, Allen & Unwin, 1954. 116 pp. 7*s.* 6*d.*
3. BRITISH STANDARDS INSTITUTION. Printers' and authors' proof corrections. British standard 1219: 1945. London, the Institution. 20 pp. 2*s.* 6*d.*
4. BRITISH STANDARDS INSTITUTION. Bibliographical references. British standard 1629: 1950. London, the Institution. 18 pp. 2*s.* 6*d.*
5. BURBIDGE, P. G. Notes and references. Cambridge authors' and printers' guides no. 4. Cambridge, University Press, 1952. 20 pp. 2*s.* 6*d.*
6. CAMBRIDGE UNIVERSITY PRESS. Preparation of manuscripts and correction of proofs. Cambridge authors' and printers' guides no. 2. Cambridge, University Press, 1951. 19 pp. 2*s.* 6*d.*
7. CAREY, G. V. Making an index. Cambridge authors' and printers, guides no. 3. Cambridge, University Press, 1951. 16 pp. 2*s.* 6*d.*
8. CHAUNDY, T. W., BARRETT, P. R., *and* BATEY, C. The printing of mathematics; aids for authors and editors and rules for compositors and readers at the University Press, Oxford. Oxford, the Press, 1954. vi, 105 pp. plates, diagrs. tables. 15*s.*
9. COHEN, MORRIS R., *and* NAGEL, ERNEST. An introduction to logic

and scientific method. London, Routledge and Kegan Paul, 1934. xii, 467 pp. diagrs. 25*s.*

10. Collins, F. Howard. Authors' and printers' dictionary ; a guide for authors, editors, printers, correctors of the press, compositors and typists ; with full list of abbreviations ; an attempt to codify the best typographical practices of the present day. Oxford, University Press, 9th ed. 1946. xvi, 428 pp. 8*s.* 6*d.*
11. Collison, R. L. Indexes and indexing : a guide to the indexing of books and collections of books, periodicals, music, gramophone records, films and other material, with a reference section and suggestions for further reading. London, Benn, 1953. 155 pp. diagrs. 10*s.* 6*d.*
12. Ewart, K. Copyright. Cambridge authors' and printers' guides no. 5. Cambridge, University Press, 1952. 19 pp. 2*s.* 6*d.*
13. Flood, W. E., *and* West, Michael. An explaining and pronouncing dictionary of scientific and technical words. London, Longmans, 1952. viii, 397 pp. illus. 12*s.* 6*d.*
14. Fowler, H. W. A dictionary of modern English usage. Oxford, Clarendon Press, 1926. viii, 742 pp. 12*s.* 6*d.*
15. Fowler, H. W., *and* Fowler, F. G. The King's English. Oxford, Clarendon Press, 3rd ed. 1931. 383 pp. 10*s.* 6*d.*
16. Fowler, H. W., *and* Fowler, F. G. Concise Oxford dictionary of current English ; adapted from the Oxford dictionary. Oxford, Clarendon Press, 4th ed. 1951. xvi, 1,530 pp. 15*s.*
17. Gaum, O. G., Graves, H. F., *and* Hoffman, L. S. S. Report writing. New York, Prentice-Hall ; London, Chapman & Hall, 3rd ed. 1951. xvi, 384 pp. illus. facsimiles. 35*s.*
18. Gloag, John. How to write technical books with some pertinent remarks about planning technical papers and forms. London, Allen & Unwin, 1950. xx, 159 pp. plates, diagrs. facsimiles. 12*s.* 6*d.*
19. Gowers, Sir Ernest. ABC of plain words. London, H.M.S.O., 1951. xiv, 146 pp. 3*s.* (paper), 4*s.* 6*d.* (cloth).
20. Gowers, Sir Ernest. Plain words ; a guide to the use of English. London, H.M.S.O., 1948. 94 pp. 2*s.*
21. Graves, Robert, *and* Hodge, Alan. The reader over your shoulder; a handbook for writers of English prose. London, Cape, 2nd ed. 1947. 221 pp. 12*s.* 6*d.*
22. Grove, Victor. The language bar. [Explains how the multiple derivation of English vocabulary creates a barrier between the educated minority and the uninstructed majority.] London, Routledge and Kegan Paul, 1950 v, 160 pp. 12*s.* 6*d.*
23. Gunning, Robert. The technique of clear writing. New York and London, McGraw-Hill, 1952. x, 289 pp. 30*s.*
24. Hart, Horace. Rules for compositors and readers at the University Press, Oxford. Oxford, University Press, 36th edition, 1952. 143 pp. 6*s.*
25. Hayakawa, S. I. Language in thought and action. How men use words and words use men. London, Allen & Unwin, 1952. xxxiv, 307 pp. 18*s.*
26. Hough, J. H. Scientific terminology. New York, Rinehart, 1953. xii, 231 pp. 26*s.* 6*d.*
27. Institute of Physics. Notes on the preparation of contributions

to the Institute's journals and other publications. London, the Institute, 1952. 32 pp. diagrs. 2*s*. 6*d*.

28. INSTITUTION OF ELECTRICAL ENGINEERS. Handbook for authors ; this booklet . . . deals with the preparation and presentation of papers and their publication in the Proceedings of the Institution. London, The Institution, 1950. 42 pp. diagrs. tables. 2*s*.
29. JESPERSEN, OTTO. Essentials of English grammar. London, Allen & Unwin, 1933. 387 pp. 12*s*. 6*d*.
30. KAPP, REGINALD O. The presentation of technical information. London, Constable, 1948. xi, 147 pp. 6*s*.
31. LONDON MATHEMATICAL SOCIETY. Notes on the preparation of mathematical papers. London, Hodgson, 1932. 19 pp. 1*s*.
32. NELSON, J. RALEIGH. Writing the technical report. New York, London, McGraw-Hill, 3rd ed. 1952. 356 pp. illus. facsimiles. 36*s*.
33. PARTRIDGE, ERIC. Usage and abusage ; a guide to good English. London, Hamish Hamilton, 4th ed. 1948. 384 pp. 15*s*.
34. RHODES, F. H. Technical report writing. New York, London, McGraw-Hill, 1941. 125 pp. illus. diagrs. 28*s*.
35. ROYAL SOCIETY. A list of British scientific publications reporting original work or critical reviews. London, Cambridge University Press, 1950. 95 pp. 2*s*. 6*d*.
36. ROYAL SOCIETY. General notes on the composition of scientific papers. London, Cambridge University Press, 1950. 26 pp. 2*s*. 6*d*.
37. SAUNDERS, A. G., *and* ANDERSON, C. R. Business reports ; investigation and presentation. New York and London, McGraw-Hill, 2nd ed. 1940. xii, 468 pp. illus. diagrs. 38*s*.
38. SHIDLE, NORMAN G. Clear writing for easy reading. New York and London, McGraw-Hill, 1951. vii, 176 pp. 28*s*.
39. SPEAR, MARY ELEANOR. Charting statistics. New York and London, McGraw-Hill, 1952. xii, 253 pp., illus. diagrs. tables. 36*s*.
40. TREBLE, H. A., *and* VALLINS, G. H. An ABC of English usage. Oxford, Clarendon Press, 1936. 192 pp. 5*s*. 6*d*.
41. TRELEASE, S. F. The scientific paper ; how to prepare it ; how to write it ; a handbook for students and research workers in all branches of science. Baltimore, Williams & Wilkins ; London, Bailliere, Tindall & Cox ; 2nd ed. 1951. xii, 163 pp. 20*s*.
42. VALLINS, G. H. Better English. London, Pan Books, 1953. 224 pp. 2*s*.
43. VALLINS, G. H. Good English ; how to write it. London, Deutsch, 1951. ix, 214 pp. 15*s*. (Condensed version 2*s*.)
44. WEST, MICHAEL, *comp. and ed.* A general service list of English words with semantic frequencies and a supplementary word list for the writing of popular science and technology. London, Longmans, revised ed. 1953. xiii, 588 pp. 50*s*.
45. WILEY PUBLICATIONS. Authors' guide for preparing manuscripts and handling proof. New York, Wiley ; London, Chapman & Hall, 1951. xi, 80 pp. 22*s*. 6*d*.
46. WILLIAMS, G. E. Technical literature ; its preparation and presentation. London, Allen & Unwin, 1948. 117 pp. illus. 7*s*. 6*d*.
47. WILSON, E. BRIGHT. An introduction to scientific research. New York and London, McGraw-Hill, 1952. xiii, 375 pp. 48*s*.

SELECT LIST OF STANDARDS AND OTHER AIDS FOR EDITORS AND PUBLISHERS OF TECHNICAL LITERATURE

By G. A. Lloyd

British Standards Institution

THE purpose of this list is to indicate some of the tools which may help those concerned in editing and publishing scientific and technical papers to present their material in the clearest, most effective and most economic manner. Whether authors or not, they should certainly be familiar with at least some of the guides to good technical writing in the foregoing bibliography ; they should especially heed the compiler's opening remarks, and above all the final passage. But there are other problems besetting the technical editor—layout, references, transliteration and technical symbols, for example—problems which are greatly simplified by the adoption of standard practices where these have been established. Some of the most useful recommendations are not as well known as they should be, partly because they are not always readily available and partly through lack of publicity, and it is hoped here to some extent to remedy this.*

As regards British standards and international recommendations, the list is reasonably complete, but only a few of the many foreign standards are included, chiefly for comparison and to stimulate further inquiry by those interested. Published standards may be had through the British Standards Institution, which also maintains a collection of national and international recommendations for reference in its library.

The items are arranged under subject headings grouped alphabetically but, to avoid repetition throughout, the series code letters for the various standards are given here *en bloc*, with the full name and location of the respective issuing bodies :—

ISO ..	International Organization for Standardization : Geneva	
BS ..	British Standards Institution : London	[BSI]
ASA ..	American Standards Association, Inc. : New York	
CSN ..	Uřad pro Normalisací : Prague	[UPN]
DIN ..	Deutscher Normenausschuss : Berlin	[DNA]
DS ..	Dansk Standardiseringsraad : Copenhagen	
IS ..	Indian Standards Institution : Delhi	[ISI]
MNOSZ	Magyar Szabványügyi Intézet : Budapest	
N ..	Hoofdcommissie v. d. Normalisatie in Nederland : The Hague	
NBN ..	Institut Belge de Normalisation : Brussels	[IBN]

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* A contract has recently been drawn up between Unesco and the International Organization for Standardization, aimed at securing as wide a distribution as possible of a Report including the four ISO Recommendations and Draft Recommendations thought to be most urgently required. These items are marked in the list with marginal asterisks.

NF .. Association Française de Normalisation : Paris [AFNOR]
SNV .. Schweizerische Normen-Vereinigung : Zürich
STAS .. Comisia de Stat a Standardizarii : Bucarest

Abbreviations of titles of periodicals

*(1) ISO. R 4 (1954). International code for the abbreviation of titles of periodicals. 4 pp.

[The recommendations in this Code correspond substantially to those in the national standards. A forthcoming British Standard will also include a full alphabetically arranged list of words with their recommended abbreviations.]

(2) DIN. 1502 (1931). Zeitschriften-Kurztitel : Internationale Regeln für die Kürzung. 2 pp.
(1940). Beiblatt : Gattungswörter und Wörter für geographische Begriffe. 7 pp.
(3) IS. 18 (1949). Abbreviation for titles of periodicals. 10 pp. R*s*. 1/4.
(4) N. 782 (1949). Tijdschriften. Titelafkortingen. 8 pp.
(5) NBN. 247 (1951). Code d'abréviation des titres de périodiques. 22 pp. 30 *fr.*
(6) NF.Z 44-002 (1944). Code d'abréviation des titres de périodiques. 24 pp.
(7) SNV. 90100-1 (1943). Titres de périodiques. Code d'abréviation et liste des abréviations couramment employées. 6 pp. and 4 pp.

Abstracts and synopses (*see also* Bibliographical references)

[An ISO draft was approved at the Documentation Committee's 5th meeting in Brussels, in June, 1954. This is based on the Unesco *Guide for the preparation and publication of synopses* and the Royal Society's 1948 recommendations from which the Unesco *Guide* was derived.]

(8) DIN. 1426 (1953). Schrifttumsberichte : Richtlinie. 2 pp.
(9) NBN. 299 (1953). Compte rendu analytique. 6 pp. 10 *fr.*

Alphabetical arrangement (*see also* Contents, indexes, etc.)

(10) BS. 1749 (1951). Alphabetical arrangement. 12 pp. 2*s.*
(11) CSN. 1410 (1947). Abecední Řadení. 16 pp.
(12) DIN. 5007 (1948). Deutsche Einheits-ABC-Regeln. 8 pp.
(13) DS. 377 (1943). Alfabetiseringsregler. 11 pp.
(14) NF.Z 44-001 (1943). Les règles du répertoire alphabétique français. 8 pp.
(1950). Addendum 1 : Mots directeurs homographes [homonyms]. 1 p.

Bibliographical references (*see also* Abstracts)

*(15) ISO Draft Recommendation 23 (1953). Bibliographical citations
*(16) ISO Draft Recommendation 24 (1953). Bibliographical references
(17) BS. 1629 (1950). Bibliographical references. 18 pp. 2*s.* 6*d.*
(1951). Amendment PD 1186.

(18) DIN. 1505 (1939). Titelangaben von Schrifttum. 2 pp.
(19) NBN. 245 (1951). Références bibliographiques. 8 pp. 25 *fr.*
(20) STAS.R 945 (1950). Nota bibliografica. 4 pp.

Bibliographical strip (*see also* Layout of periodicals)
(21) ISO Draft Recommendation 31 (1953). Bibliographical strip
(22) DIN. 1501 (1928). Zeitschriften : Ordnungsleiste auf der ersten Umschlagseite. 1 p.
(23) DS. 147 (1935). Tidskrifter . . . Margensignaturer paa 1. Omslagsside. 2 pp.
(24) N. 783 (1934). Tijdschriften. Titelvoet. 2 pp.
(25) SNV. 90102 (1945). Manchette bibliographique pour périodiques. 6 pp.

Contents, indexes, etc. (*see also* Alphabetical arrangement, and Layout of periodicals)
(26) ISO Draft Recommendation 40 (1954). Contents lists.
[This Draft recommendation is referred to in BS. 2509 (see under Layout), which includes recommendations on issue and volume contents lists, indexes, etc.]
(27) NBN. 273 (1952). Tables des matières. 4 pp. 10 *fr.*
(28) NBN. 274 (1952). Indexe. 5 pp. 10 *fr.*
(29) NBN. 275 (1952). Sommaire. 3 pp. 10 *fr.*

Document copying (*see* Sizes, *and also the* Addendum)

Folders and files
Formats (*see* Sizes and measurements)

Layout of periodicals (*see also* Sizes)
[Many of these standards include recommendations for Bibliographical strip, contents lists, indexes, etc.]
*(30) ISO Draft Recommendation 3 (1953). Layout of periodicals
(31) ASA.Z 39.1 (1943). Reference data and arrangement of periodicals. 4 pp.
(32) BS. 2509 (1954). Layout of periodicals : a guide for editors and publishers. 20 pp. 3*s.*
(33) DIN. 1503 (1938). Wissenschaftliche Zeitschriften : Richtlinien für die Gestaltung. 2 pp.
(34) DS. 148 (1935). Tidskrifter og Dagblade. Retningslinier for Udseendet. 2 pp.
(35) IS. 4 (1949). Practice for make-up of periodicals. 6 pp. *As.* 8.
(36) NBN. 246 (1951). Présentation des périodiques. 8 pp. 15 *fr.*
(37) NF.Z 41–001 (1942). Présentation des revues. 8 pp.

Presentation of technical reports, articles, etc.
[An ISO draft, approved at the Documentation Committee's meeting in Brussels, in June, 1954, will be circulated shortly for comment among national member bodies, and will be available on application to the British Standards Institution.]

(38) DIN. 1422 (1952). Technisch - wissenschaftliche Veröffentlichungen : Richtlinien für die Gestaltung. 3 pp.
(39) NBN. 292 (1952). Présentation des articles de périodique. 6 pp. 15 *fr.*

Photocopying (*see* Sizes, *and in the* Addendum)

Proof correction

(40) BS. 1219 (1945). Printers' and authors' proof corrections. Amendments PD444 (1946) ; PD1026 (1950). 20 pp. 2*s.* 6*d.*
1219 C (1945). Table of symbols for printers' and authors' proof corrections (extract from BS. 1219). Card 6 pp. 1*s.*
(41) CSN. 88.0410 (1953). Korekturni znamenka. 30 pp.
(42) DIN. 16511 (1929). Korrekturzeichen und ihre Erklarung.
(43) DS. 114 (1933). Korrekturtegn og deres Anvendelse. 2 pp.
(44) N. 632 (1932). Correctieteekens voor drukproeven.
(45) NBN. 287 (1953). Signes de corrections des épreuves d'imprimerie. 6 pp. 20 *fr.*
(46) NBN. 288 (1953). Do. des textes manuscrits oudactylographiés. 6 pp. 20 *fr.*
(47) SNV. 66100 (1930). Korrekturenzeichen für Druckereiwesen.

Sizes and measurements (*see also* Layout)

(48) ISO Draft Recommendation 17 (1952). Photographic reproduction of documents on paper. Sizes.
(49) BS. 1896 (1952). Recommendations for sizes of sensitized photographic papers and materials (excluding film) for document reproduction. 8 pp. 2*s.*
(50) BS. 1311 (1946). Sizes and contents arrangement for manufacturers' trade and technical literature (building). 6 pp. 1*s.*
(51) BS. 1413 (1947). Book sizes and dating of books. 4 pp. 2*s.*
(52) BS. 2489 (1954). Sequence of measurements for printed matter. 12 pp. 2*s.*
(53) BS. 1467 (1948). Folders and files (for correspondence filing) [including spacing of punch holes]. 8 pp. 2*s.*
(54) DIN. 826 (1928). Zeitschrift im Format A4 (210 × 297 mm). 2 pp.
(55) DIN. 821 (1952). Schriftgutbehalter. Ordner. Hefter. 2 pp.

Symbols and abbreviations

(56) BS. 560 (1934). Engineering symbols and abbreviations. 62 pp. 5*s.*
(57) BS. 813 (1938). Chemical symbols and abbreviations. 35 pp. 4*s.*

(58) BS. 1991 : Pt. 1 (1954). Letter symbols, signs and abbreviations. Part I. General. 45 pp. 6*s*.

(59) DIN. 1301 (1933). Einheiten. Kurzzeichen.

(60) DIN. 1302 (1939). Mathematische Zeichen.

[For further standards, see BS. Yearbook Index, entries under Glossaries, Nomenclature, Symbols, etc., and DIN Normblatt-Verzeichnis Index.]

Transliteration (of cyrillic alphabet)

(61) ISO Draft Recommendation 6 (1953). Transliteration of Cyrillic characters.

[The British Standard, due to appear in 1955, closely adheres to the ISO recommendations, since it is intended for international exchange purposes. No standard 'English' system (based on English phonetic usage) is yet in preparation, but the Royal Society has recently issued a 16-pp. pamphlet (price 1*s*.), which may appeal especially to scientific editors. In addition, the Permanent Committee on Geographical Names for British Official Use (PCGN) during the last ten years or more has prepared for the Admiralty and War Office a valuable series of Glossaries (1*s*. 6*d*. or 2*s*. 6*d*.) on Russian, Japanese, Arabic and other languages, but these are concerned only with geographical names.]

(62) DIN. 1460 (1953). Transliteration kyrillischer Buchstaben. 3 pp.

(63) DS. 378 (1953). Translitteration af kyrilliske bogstaver. 2 pp.

(64) MNOSZ-3394 (1951). Cirilbetüs címek átírása [Budapest]. 6 pp.

ADDENDUM—SHORT LIST OF REFERENCE WORKS (OTHER THAN STANDARDS) ON DOCUMENT REPRODUCTION, PRINTING AND TYPOGRAPHY

The following, though not standards, are useful works of reference for technical editors who may wish to know more about printing and typography or to obtain guidance on other methods of reproducing their material :—

(65) Fédération internationale de documentation [FID Publ. No. 244]. *Directory of microfilm and photocopying services*, 1951. [Data on more than 150 reproduction services in 80 countries.]

(66) Fédération internationale de documentation [FID Publ. No. 264]. *Manual on document reproduction and selection*. 1953.

(67) Jennett, S. *The making of books*. London : Faber & Faber. 1951.

(68) Morison, S. *First principles of typography*. Cambridge : University Press. 1951. Cambridge Authors' and Printers' Guide Series.

(69) Simon, O. *Introduction to typography*. Revised ed. Pelican Books A288. Penguin Books (in association with Faber & Faber). 1954.

(70) Whetton, H. *ed. Practical printing and binding. A complete guide to the latest developments in all branches of the printer's craft.* Odham's Press, Ltd. 1946.

Discussion

THE CHAIRMAN, opening the discussion, remarked on the circumstances that made it necessary for librarians to take on these additional tasks. He pointed out that, for some time, Aslib had been telling the publishers how they should lay out their books and periodicals, and he thought that there was less discipline in the production of reports than in these fields. The situation should be taken in hand now.

MR. B. FULLMAN (British Non-Ferrous Metals Research Association) described the handling of reports in his own organization. Reports were written and edited in the research department, reproduction being carried out on a Rotaprint machine. Short reviews of reports were included in *B.N.F. Review* which was issued monthly to members. Members could ask for copies of reports which they wanted to have, but there was little automatic circulation.

MISS M. DYKE (Royal Aircraft Establishment) thought that librarians were tending to become great authorities on many subjects other than librarianship.

MISS N. H. JOHNSON (D.S.I.R., Water Pollution Research Laboratory) said that she was responsible in her own organization for the production of technical papers and had the added duty of persuading authors to complete their reports on time. She thought that there was a natural tendency among authors for them to believe that publication of a single paper giving a detailed account of experimental work was sufficient for the results of that work to become generally known. She believed that one duty of a librarian was to encourage scientific and technical authors to write lucid papers for the information of those who needed to know the practical results of the work and how to apply them.

MR. C. W. HANSON (British Scientific Instrument Research Association) asked librarians and information officers to use their influence to discourage the semi-publication of the flood of reports which emanated from the research laboratories. In many cases, these reports were of poor quality, were never abstracted and did not become widely known. Publication in technical and learned society journals, which would ensure proper refereeing, would be preferable. Referring to security restrictions, he said that these cut right across the work of the information officer and in many cases the security tag on a document was quite unnecessary. He believed that the incidence of ability to write well was very small in science graduates as in others, and this ability could only be improved to a limited extent by the use of textbooks. The real trouble was that the majority of scientists and technicians were not prepared to take enough time or trouble to produce a first-class piece of written work.

MR. K. E. B. JAY (Atomic Energy Research Establishment, Harwell) agreed with Mr. Hanson that by and large people should be dissuaded from writing long reports. He thought that reports should be written only if the author had something to say that was really worth saying ; when this happened it was usually desirable that accounts of the same work should be prepared for different audiences.

MR. R. A. FAIRTHORNE (Royal Aircraft Establishment) reminded the audience that many reports were really administrative instruments, designed to show how the investigation was proceeding. They were written for the benefit of management merely to prove that the technician had not gone to sleep on the problem.

MR. ARTHUR CAIN (University Microfilms) thought that there was an essential lack in our scheme of education. People were taught to read, but not to write. He had oped to hear some reference to readability techniques in the papers presented, and he lieved that good report writing was not so much a question of flair but of extremely d work.

RS. A. M. WHITROW (Individual Member) pointed out that third-year science ates at London University were now receiving instruction in writing techniques.

J. FARRADANE (Tate & Lyle, Ltd.), referring to Miss Dyke's comment, said librarians were willing and able to take on other work, why should they be ted from doing so ? Somebody had to put a report in order, and if the scientist ot do it, was it not an opportunity for the information officer who was so much ed with technical literature ? There were, of course, certain difficulties such fact that minute changes in grammar, or wording, might change the scientific f a particular passage.

DR. C. GROENEVELD (Shell Laboratories, Amsterdam) observed that good writing was a composite art ; next to style and language, logical binding of the sentences was of the utmost importance. Special care should be taken to avoid logical errors and to ensure that every sentence grew out of the preceding one in an orderly manner. Dr. Groeneveld referred to the course for information officers in Holland, described during last year's conference, where use was made of Jevon's *Introduction to logic* to help in teaching students to write. He said that this book included an excellent collection of problems and answers useful for teaching people to avoid logical errors when writing reports.

MR. H. E. L. FREYTAG (British Boot, Shoe and Allied Trades Research Association) said that books on report writing had either to give general advice which might sound rather obvious and which the hurried reader then tended to think he already followed (as far as his very special circumstances allowed !) or to give specific advice on some special subject which might then not be of interest. Both forms could be valuable, provided the reader analysed his problems in the light of the advice and so realized how much did, in fact, apply to him. He would only take the time for this if he had confidence in the book and the questioner therefore wondered which of the books on report writing the speaker (Mr. Brookes) would recommend as a 'Bible'. It was not a case, for most people, of two books being better than one.

MR. R. G. THORNE (Royal Aircraft Establishment) pointed out that the technical report, as a vehicle for disseminating information, was here to stay and that if librarians wanted to improve standards in this field they must play an active part in doing so.

MR. V. D. FREEDLAND (British Hat and Allied Feltmakers Research Association) said that if the remarks made in the discussion on the writing ability of scientists were true, it was deplorable that an educational system such as ours was producing a body of scientists unable to write English.

MR. BROOKES, replying, said that there was no reason why scientists should not be taught to write during their university career and, in fact, this was being done in two of the London colleges and at Bristol and Durham. Regarding readability techniques, he said that at least two books mentioned in the bibliography (Nos. 23 and 28) mentioned them.

MR. SALE, in his reply, pointed out that good writing and good editing formed the main theme of the discussion. If librarians were so conscious of this point, surely that indicated a strong case for making them responsible for report standards.

THE CHAIRMAN, summing up, stressed the point that the discussion had shown the strong feelings that existed on the standard of writing and of editing. He suggested that standardization of format and layout was another very good reason why the librarian should have control over the production of reports. This might be a minor matter for the ordinary person but was very important from the librarian's point of view.

EXHIBITION NOTES

The following firms were represented in the exhibition but were not specifically mentioned in Mr Anthony's paper on current equipment. A list of all the exhibitors is printed on p. 290.

Bailey Bros. & Swinfen, Ltd.
With the particular needs of special librarians in mind, Bailey Bros. & Swinfen displayed, among other titles, the newest publications of foreign houses for which they act as sole agents, including the American Association for the Advancement of Science, the American Management Association, the Harvard University Graduate School of Business Administration, W. H. Freeman (natural sciences), Scarecrow Press (bibliography), and others
Long known as specialists in foreign dictionaries, they again made a feature of foreign dictionaries in technical subjects. Their catalogue of these works, described by a leading language periodical as 'unique', and other explanatory literature, was available free.

British National Bibliography, Ltd.
B.N.B is an important source of information about new British books and pamphlets on every subject . . . the fullest list of its kind . . based on material received at the Copyright Office of the British Museum . . produced as a weekly list for current book selections and as a series of cumulated catalogues for permanent reference Published by the Council of the British National Bibliography, Ltd.

Cleaver-Hume Press, Ltd.
Scientific and industrial reference books including the publications of Elsevier Publishing Co., Amsterdam, and Philips N.V., Eindhoven. Of special interest in the field of chemical documentation were the 'Elsevier's Encyclopædia of Organic Chemistry', the 'Chemistry of Carbon Compounds' series and the new 'Solvents Manual' by C. Marsden.

Luxfer, Ltd.
Luxfer, Ltd., who are specialists in library planning, construction and equipment, showed photographs and illustrations indicating the variety and scope of their services.

McGraw-Hill Publishing Co., Ltd.
Exhibition included current publications covering a wide range of scientific, technical and economic subjects. Of particular interest were volumes in the 'World in Colour Series' and the new McGraw-Hill Pocket Travel Guides

Macmillan & Co., Ltd.
Recent publications in specialized fields of science and technology, history, philosophy, etc., were displayed. Among the publications of Macmillan & Co., Ltd., were included such well-known works of reference as The Van Nostrand Scientific Encyclopaedia, The Van Nostrand Chemists' Dictionary, Grove's Dictionary of Music and Musicians and English Studies in Criminal Science.

Roneo, Ltd.
Roneo, Ltd., showed a method of card production by which four cards (author, subject, tracing and location) were produced from a single typing ; also a range of attractive subject catalogues produced electronically in colour.

W. H. Smith & Son, Ltd.
Alacra lightweight Portable Registrator.

United States Information Service, London
The exhibition of bulletins, booklists, pamphlets, etc., supplied by the United States Information Service indicated the scope and purpose of the Service. Information was available on the American Library, the film lending library, the press photo collection, liaison and information facilities, etc.

LIST OF EXHIBITORS

Bailey Bros. & Swinfen, Ltd.
    46 St. Giles High Street, London, W.C.2.
Boosey & Hawkes (Engineers), Ltd.
    Sonorous Works, Deansbrook Road, Edgware, Middx.
British National Bibliography, Ltd.
    c/o The British Museum, London, W.C.1.
Cleaver-Hume Press, Ltd.
    Publishing Division, 31 Wright's Lane, London, W.8.
Contoura Photocopying, Ltd.
    56–60 Islington Park Street, London, N.1.
Copycat Associated (Marketing), Ltd.
    8 Southampton Row, London, W.C.1.
Ellams Duplicator Co., Ltd.
    5 Dean Street, London, W.1.
Hawthorn Baker, Ltd.
    Nicholas Lane, Dunstable, Beds.
Lawes Rabjohns, Ltd.
    Abbey House, Victoria Street, London, S.W.1.
Lindication, Ltd.
    Hong Kong Works, Exhibition Grounds, Wembley, Middx.
Luxfer, Ltd.
    Waxlow Road, Harlesden, London, N.W.10.
McGraw-Hill Publishing Co., Ltd.
    McGraw-Hill House, London, E.C.4.
Macmillan & Co., Ltd.
    St. Martin's Street, London, W.C.2.
Office Equipment Co.
    113 High Holborn, London, W.C.1.
Ozalid Co., Ltd.
    62 London Wall, London, E.C.2.
Quickbinde, Ltd.
    195 Sloane Street, London, S.W.1.
Roneo, Ltd.
    17 Southampton Row, London, W.C.1.
Rotadex Systems, Ltd.
    Christmas Steps, Bristol, 1.
W. H. Smith & Son, Ltd.
    Alaska Factory, Western Avenue, London, W.3.
United States Information Service.
    American Library, 41 Grosvenor Square, London, W.1.
A. West & Partners, Ltd.
    4 Abbey Orchard Street, London, S.W.1.

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ISI *see* Indian Standards Institution
ISO *see* International Organization for Standardization
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